40. January 22, 1982 Operating Permit #46-399-048

Provided by: PADEP

DEPARTMENT OF ENVIRONMENTAL RESOURCES
BUREAU OF AIR QUALITY CONTROL

FACILITIES D

OPERATING PERMIT

In accordance with provisions of the Air Pollution Control Act, the Act of January 8, 1960, P.L. 2119, as amended, and after due consideration of an application received under Chapter 127 of the rules and regulations of the Department of Environmental Resources, the Department hereby issues this permit for the operation of the air contamination source described below.

Permit No.	46-399-048	Source &	Semi-Conductor Mfg. Pro
Owner	Solid State Scientific, Inc.	Air	(Scrubber)
Address	Commerce Drive	Cleaning	
	Montgomeryville, PA 18936	Device	
Attention:	Mr. Craig Phillips, P.E.	Location	Montgomeryville
	Facilities Manager		Montgomery County

This permit is subject to the following conditions:

(1) That the source and any associated air cleaning devices are to be:

(a) operated in such a manner as not to cause air pollution;
(b) in compliance with the specifications and conditions of the plan approval issued under the same number;
(c) operated and maintained in a manner consistent with good operating and maintenance practices.

(2) This permit is valid only for the specific equipment, location and owner named above.

(a) Solid State Scientific, Inc. must maintain a pH of 10 to 11 by adding caustic solution to liquid. The chemist must test the wastewater weekly.

Failure to comply with the conditions placed on this permit is a violation of Section 127.25. Violation of this or any other provision of Article III of the rules and regulations of the Department of Environmental Resources will result in suspension or revocation of this permit and/or prosecution under Section 9 of the Air Pollution Control Act.

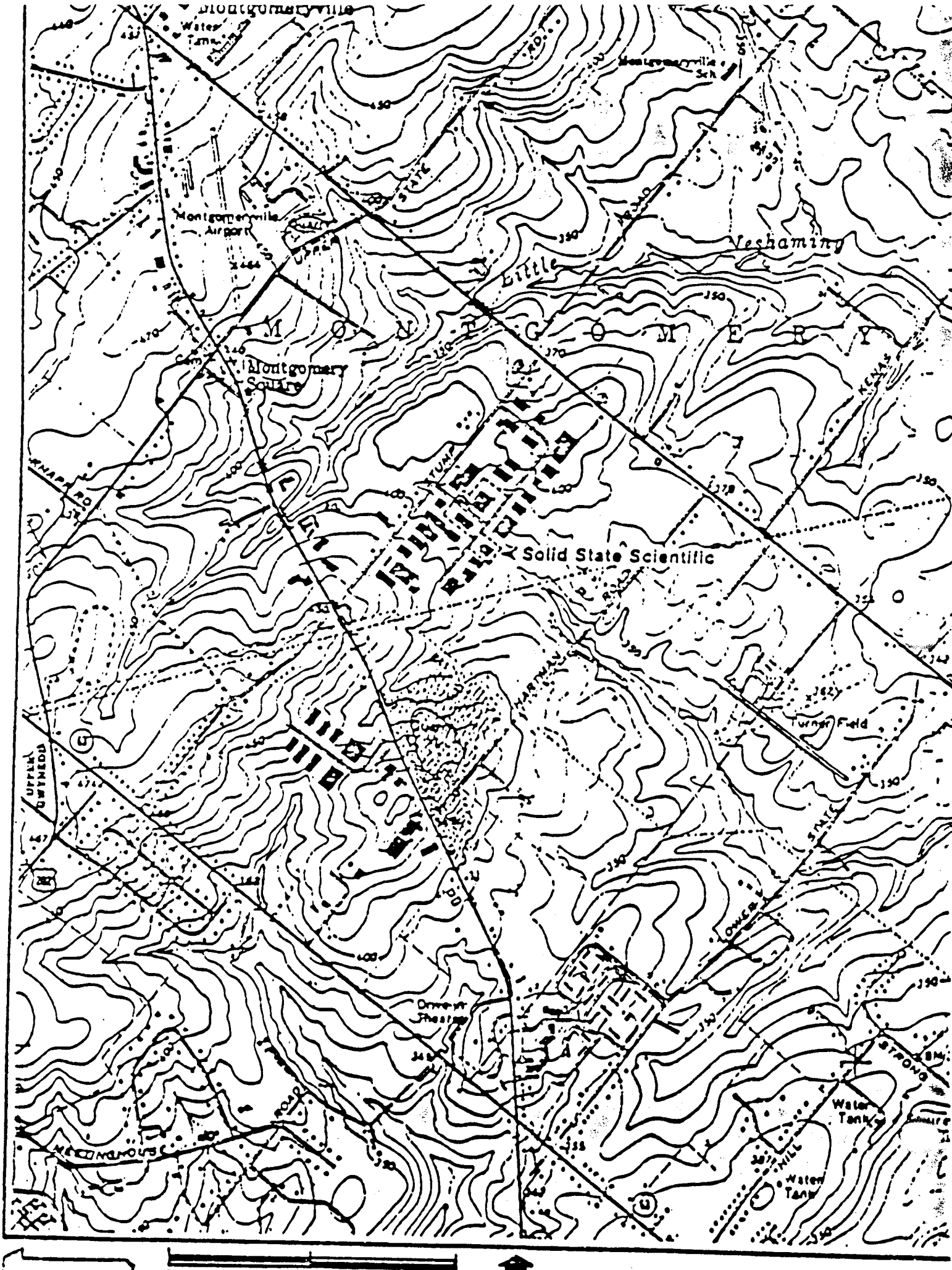
Issued JAN 22 1982

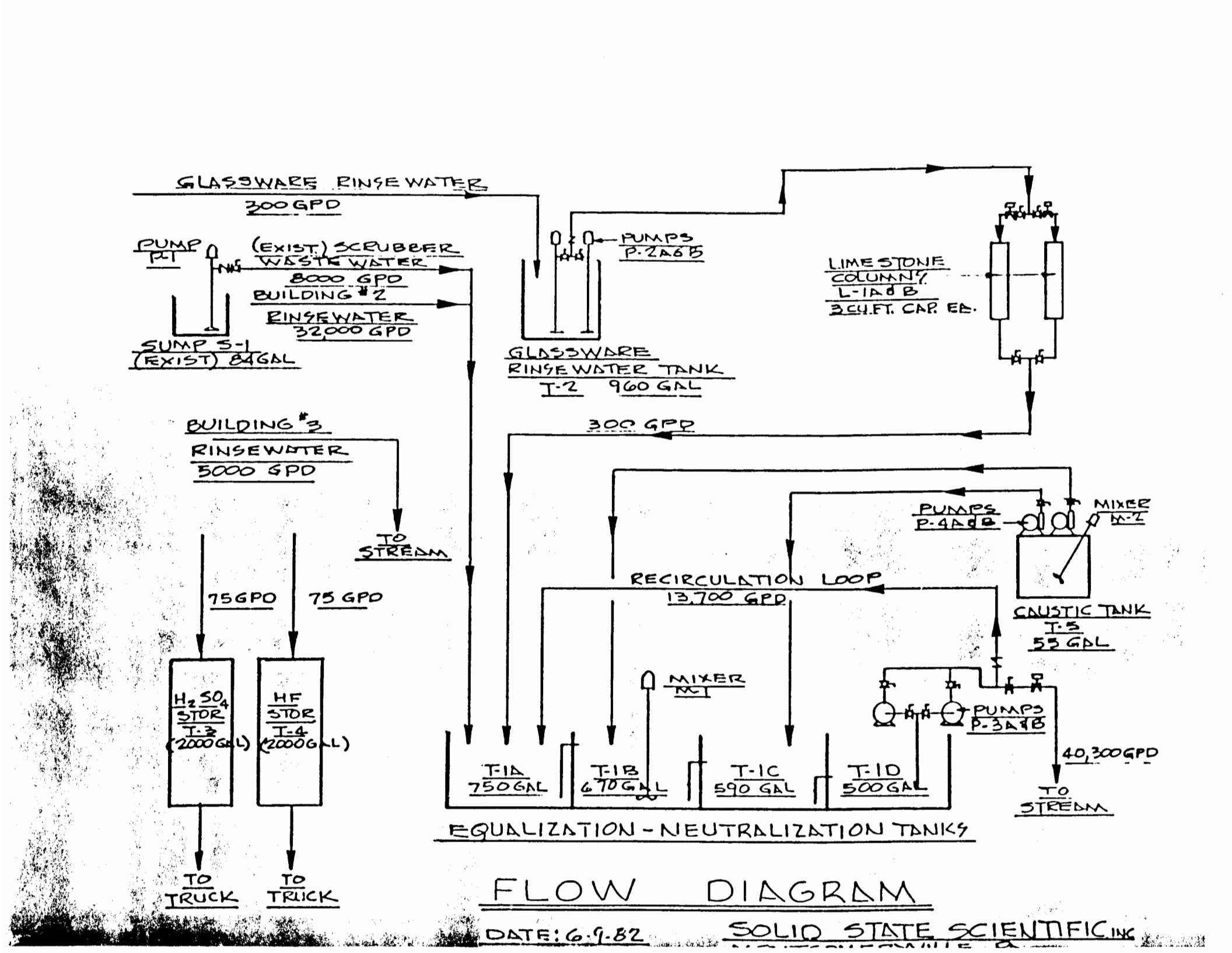
N. Rao Kona

N. Rao Kona
Regional Air Pollution Control Engineer

Expires February 28, 1986

cc: Central Office
Norristown Regional Office


Montgomeryville
Montgomeryville Airport
Montgomery County
Little Neshaminy
MONTGOMERY
Solid State Scientific
Turner Field
Water Tank
Water Tank
0
2000
4000 ft
N



FLOW DIAGRAM

DATE: 6-9-82

SOLID STATE SCIENTIFIC INC

41. September 14, 1981 PADEP Memo Regarding Treatment Plant

Provided by: PADEP

COMMONWEALTH OF PENNSYLVANIA
Environmental Resources

September 14, 1981
8-354-2411

Solid State Scientific, Inc.
Montgomery Township, Montgomery County

File

James P. Ridolfi
Sanitary Engineer
Permits Section

On September 9, 1981 I met with Al Corace, Plant Manager and Craig Phillips, Facilities Manager of Solid State Scientific and Roy Bousman, Marketing Manager of Memtek Corporation. The meeting was held at Solid State Scientific's Montgomeryville plant.

Solid State Scientific submitted Industrial Waste Application No. 4681202 in April 1981. This application proposed a treatment plant with lime precipitation, filtration, ion exchange, and neutralization to remove metals and fluoride. If properly operated this treatment plant should meet all NPDES effluent limits except total dissolved solids (TDS), which would increase.

When we pointed out the TDS problem, Solid State reevaluated the treatment options. They feel the most promising system to date is a membrane filtration unit developed by Memtek Corporation. According to Memtek their units are commonly used for precious metal recovery; however, this is the first time the units will be used for fluoride removal.

The treatment begins by converting fluorides to an insoluble form: ferric chloride is added in a primary reaction tank, calcium chloride is added in a secondary reaction tank and the pH is raised to 12-13. The wastewater is then pumped to a "Main Tank". A high volume, low pressure pump draws wastewater from the Main Tank and pumps it through the tubular membrane bundle. The high flow volume assures that the entire membrane is used and creates turbulance to prevent fouling at the membrane surface. Ninety (90) percent of the flow entering the membrane unit returns to the Main Tank. Ten (10) percent passes through the membrane to become effluent. A sludge layer (10-15% solids) gradually forms in the Main Tank. Periodically, this sludge is drained to thickening and disposal.

Memtek is currently operating a pilot system at the Solid State plant. The system has been treating grabs of Solid State's effluent for one (1) week. Memtek analyzes the raw and treated wastewater for the parameters limited in the NPDES permit. Quality Control Labs analyzes samples independently to verify Memtek's claims. Although influent fluoride concentrations vary widely, the highest effluent fluoride concentrations measured thus far is 1.23 mg/l. A sample of the effluent I saw was as clear as any tap water.

Compared to the lime-filter-ion exchange system originally proposed, the Memtek system appears easier to operate. The only critical operating parameter is pH. Memtek is uncertain about membrane life span; they claim all full size systems installed to date are using the original membranes. Periodically the membranes are cleaned with dilute acid which can be discharged to the head of the treatment system.

Memtek believes its system may be able to meet the TDS limits without additional treatment (reverse osmosis).

The theory is that at the high pH (12-13) solubility products will cause most solids to be insoluble. These solids will then be held back by the membrane and latter removed as sludge.

Solid State wishes to install a full size system (35 gpm) and to try to meet the TDS limits. The design will include provisions for installation of a reverse osmosis step. If the Memtek system alone fails to meet the TDS limits, then Solid State will install the R/O system.

Solid State believes they can submit a revised Part II application within 2 months. The system can still be installed by June 1, 1982. If the TDS removal theory holds true, Solid State can be in compliance by July 1, 1982.

Solid State has again requested we consider increasing the TDS limit. We may have some flexibility in this regard since Chem Par has ceased discharging and Xynatech will discharge only non-contact cooling water.

cc: Joe Feola
Ce Re 30 AZ481

Labor Costs:

With the exception of required testing and sampling to satisfy E.P.A. and D.E.R. requirements labor is almost non existent.

Sludge Removal Costs:

At this writing we are unaware of your exact costs per gallon to remove the sludge to an off-site disposal area. However, we would like to point out a comparison of the Memtek sludge concentration and the originally proposed conventional system.

Conventional	Memtek
100 gpd @ 5%	20-25 gpd @ 20-30%

As you can see the Memtek system will reduce Solid State's disposal fees by approximately 75%.

OPERATING COSTS

Electrical Requirements:

1. 2 - 3/4 Hp pumps 230 volts 4 amps each
2. 1 - 15 Hp pump 230 volts 38 amps each
3. 2 - injection pumps 110 volts 28 watts each
4. 2 - injection pumps 110 volts 53 watts each
5. 1 - 1 Hp pump 110 volts 10 amps each
6. 3 - pH monitors 110 volts 10 amps each

Chemical Requirements: Basis 45,000 gpd

1. Ferric chloride ($FeCl_3$) 36 gpd $23.76/day
2. Calcium chloride ($CaCl_2$) 98 gpd $45.08/day
3. Sodium Hydroxide (NaOH) 132 gpd $151.47/day

Total $220.21/day
Or $4.89/1,000 gallons

Basis:

Ferric Chloride - 30 - 32% concentration, 11 lbs./gal., 36 gpd @ $6.00 CWT.

Calcium Chloride - 34% concentration, 11.17 lbs./gal., 98 gpd @ $0.46/gallon

Sodium Hydroxide - 50% concentration, 12.75 lbs./gal., 132 gpd @ $9.00 CWT

The above prices are based on tank truck deliveries as apposed to purchasing the chemicals by the drum. The prices were quoted by E & F King Chemical, Norwood, Massachusetts. The chemical prices average 45% higher when purchased by the drum. Because of this extreme difference in cost, we felt bulk chemical storage tanks were the only choice.

EXHIBIT "A"

WASTE WATER QUALITY

The following contaminant levels were provided by Solid State Scientific, Inc. in Part 2.1 Design Criteria, Page 11801/4 of the original specifications:

1.	Waste Flow (avg)	gpd	45,000
2.	pH		1-4
3.	Total Suspended Solids	mg/l	19
4.	Total Dissolved Solids	mg/l	1570
5.	Ammonia Nitrogen	mg/l	24
6.	Fluoride	mg/l	80-100
7.	TOC	mg/l	20
8.	Iron (Total)	mg/l	2.0
9.	Copper (Total)	mg/l	0.05
10.	Lead (Total)	mg/l	0.24
11.	Tin (Total)	mg/l	0.20
12.	Chrome (Hex)	mg/l	0.005
13.	Nickel (Total	mg/l	0.20
14.	Zinc (Total)	mg/l	0.11
15.	Cadmium (Total)	mg/l	0.02
16.	Phenol	mg/l	0.01

42. October 19, 1981 Monthly Status Report for the Wastewater Treatment Plant

Provided by: PADEP

SOLID STATE SCIENTIFIC INC.

MONTGOMERYVILLE, PENNA. 18936 ■ 215-855-840
TWX 510-661-72(

October 19, 1981

Mr. Joseph Feola
Department of Environmental Resources
Bureau of Water Quality Management
Norristown Regional Office
1875 New Hope Street
Norristown, PA 19401

Subject: Montgomeryville Waste Water Treatment Plant
Monthly Status Report

Dear Mr. Feola:

I wish to bring you up to date on the progress of the waste water treatment plant to be built at Montgomeryville. A copy of the progress report for Betz-Converse-Murdoch is attached.

As you know, we have been working closely with Memtek Corporation and Winoku Water Systems to determine if one of their waste water treatment plant designs will successfully eliminate our problem discharges. The preliminary pilot testing by Memtek was not completely successful, and they have gone back to redesign the chemistry desired for the process. Winokur Water System (Culligan) was also having problems processing our waste material, and we purchased a swimming pool to use as an equalization tank to more closely represent the system as it will be finally designed. Both Memtek and Winokur are scheduled to have their pilot plants operating by October 20th with the revised chemical processing requirements.

The testing for the 129 priority pollutants was completed October 7th, and we expect to have the preliminary results the week of the 19th with final results the first week in November. We will supply Mr. Beechwood with these results and a copy of our P.P.C.P. as soon as the final results have been received.

We are also evaluating the possibility of segregating the most concentrated HF mixtures so that the loadings on the plant can be reduced. This could be done by containerization of each bath inside the plant or by installing a separate waste system to a large underground tank outside the plant.

I am working on getting a commitment from our manufacturing personnel to eliminate all Phenol based material from the manufacturing process before the end of the 1st quarter, 1982. They have been testing alternative methods of processing since January, 1981. This may seem like an extremely long

Per the letter from Betz-Converse-Murdoch to you on September 29, 1981, we expect them to meet their October 23rd goal of complete re-evaluation of the concept design.

If there is anything that I have not covered, or if you wish further information, please call me.

Sincerely,

Craig Phillips

Craig Phillips, P.E.
Facilities Manager

CP:jmb

Enclosure

cc: J. Ridolfi
A. Corace
A. Bove

Norristown, PA 19401

Subject: Montgomeryville Waste Water Treatment Plant
Monthly Status Report

Dear Mr. Feola:

I wish to bring you up to date on the progress of the waste water treatment plant to be built at Montgomeryville. A copy of the progress report for Betz-Converse-Murdoch is attached.

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We are also evaluating the possibility of segregating the most concentrated HF mixtures so that the loadings on the plant can be reduced. This could be done by containerization of each bath inside the plant or by installing a separate waste system to a large underground tank outside the plant.

I am working on getting a commitment from our manufacturing personnel to eliminate all Phenol based material from the manufacturing process before the end of the 1st quarter, 1982. They have been testing alternative methods of processing since January, 1981. This may seem like an extremely long period of time to eliminate a single processing chemical, but this particula chemical is used in processing over 200 different types of products that are manufactured at our plant.

43. November 5, 1981 Letter from PADEP to DRBC Regarding Industrial Waste Treatment Facility

Provided by: PADEP

Department of Environmental Resources

1875 New Hope Street
Norristown, PA 19401
215 [illegible]-2411

November 5, 1981

Mr. Herbert A. Howlett
Chief Engineer
Delaware River Basin Commission
P.O. Box 7360
West Trenton, NJ 08628

Re: Solid State Scientific, Inc.
Montgomery Township
Montgomery County

Dear Mr. Howlett:

We are currently reviewing an application from Solid State Scientific, Inc. (SSSI) for the design of an industrial waste treatment facility. A copy of the application and supporting documents was sent to the Commission's Projects Review Branch.

During the course of our review, it was determined that the proposed facilities would not achieve the NPDES Permit's total dissolved solids (TDS) limit. This limit is currently six hundred thirty-eight (638) pounds/day average and one thousand thirteen (1,013) pounds/day maximum (one thousand seven hundred (1,700) mg/l average and three thousand nine hundred seventy (3,970) mg/l maximum). SSSI claims the current TDS limit can be met only by reverse osmosis. They claim this would not be economically feasible due to the cost of disposing of the large volume of brine solution that would be generated.

Enclosed you will find a copy of our reevaluation of TDS in the headwaters of Park Creek. One major change has occurred since our initial TDS allocation. American Can Company has closed its plant and moved to an area currently served by public sewers. Part of American Can Company's plant was taken over by Xynatech. The only discharge from Xynatech is non-contact cooling water. Process water is currently hauled away. There is a public sewer proposed to serve Xynatech in the future (mid 1982). We expect Xynatech will use this sewer for process water discharge when it becomes available.

We ask your concurrence that the regulatory agency should not force SSSI to connect to the proposed sewer to use it. We feel that requiring SSSI to install reverse osmosis is undesirable. The high levels of TDS present are a result of the treatment process to remove toxic metals and chlorides.

CHEMICAL	SPILL CONTAINMENT SIZE & TYPE	DISPOSAL FREQUENCY	LOCATION	SAFETY PRECAUTION
< 10% H_2SO_4	6000 gallon Reinforced Concrete	60 Days	Building No. 2 WWTP	Alarm and Sump Pump
< 5% HF	6000 gallon Reinforced Concrete	60 Days	Building No. 2 WWTP	Alarm and Sump Pump
Mixed Solvent	—	18 Days	Building No. 2 - Buried in ground on Enterprise Dr Site of Bldg.	Daily Visual Check and Volume Check
Solvents with Matter	—	20 Days	Building No. 3 - Buried in ground in back of Bldg.	Daily Visual Check and Volume Check
Waste Oil Sulfonic Acid hromic Sulfuric Acid Mixed Solvents	1000 gallon Bermed Asphalt (34' x40')	90 Days	Building No. 2 - Parking Lot	Daily Visual Check

tible mat ials are segregated.

TANK SIZE & TYPE	CHEMICAL	SPILL CONTAINMENT SIZE & TYPE	DISPOSAL FREQUENCY	LOCATION
2000 gallon Polyethylene	< 10% H_2SO_4	6000 gallon Reinforced Concrete	60 Days	Building No. 2 WWTP
2000 gallon Polyethylene	< 5% HF	6000 gallon Reinforced Concrete	60 Days	Building No. 2 WWTP
550 gallon Steel	Mixed Solvent	—	18 Days	Building No. 2 - Buried in g on Enterpri Site of Blc
1000 gallon Steel	Solvents with Matter	—	20 Days	Building No. 3 - Buried in g in back of
(110) 55 gallon drums (20) 5 gallon cans	Waste Oil Sulfonic Acid Chromic Sulfuric Acid Mixed Solvents	1000 gallon Bermed Asphalt (34' x40')	90 Days	Building No. 2 - Parking Lot

NOTE: Non-compatible materials are segregated

CHEMICAL	GAL./MON.
AmmFl HF mix	122
HF	52
H2O2	179
H3PO4	64
H2SO4	513
AmmFl	90
Xylene	187
Micro-neg Rinse	223
Waycoat Neg. Dev.	218
HMDS	12
Hunt Resist SC100	8
HPR 205	16
KTI Stripper	24
HNR 120	61
Type "2" Dev.	108
No-Phenol 922	300
H Cl	10

NOTE: All material is received in one gallon containers.

CSP:mej
1/25/83

AmmFl HF mix	122
HF	52
H2O2	179
H3PO4	64
H2SO4	513
AmmFl	90
Xylene	187
Micro-neg Rinse	223
Waycoat Neg. Dev.	218
HMDS	12
Hunt Resist SC100	8
HPR 205	16
KTI Stripper	24
HNR 120	61
Type "2" Dev.	108
No-Phenol 922	300
H Cl	10

NOTE: All material is received in one gallon containers.

44. June 10, 1982 Water Pollution Control Application

Provided by: PADEP

ER-SWQ-61.2

DATE PREPARED 6/10/82

TE REVISED

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL
MODULE 2 – GENERAL INFORMATION
INDUSTRIAL WASTES

For Department Use Only

E. WASTE TREATMENT – CONTINUED

4. OPERATIONAL FEATURES

NOTE: IN ANSWERING THE FOLLOWING QUESTIONS, INFORMATION PROVIDED MUST APPLY TO ALL UNITS OF TREATMENT PLANT.

A. WILL STANDBY EQUIPMENT BE PROVIDED FOR ALL MECHANICAL UNITS IN THE TREATMENT PLANT? ☐ Yes ☒ No

1.) IF NO, WILL SPARE PARTS BE STOCKED AT THE TREATMENT PLANT FOR ALL CRITICAL MECHANICAL UNITS? ☒ Yes ☐ No

2.) IF NO, ARE PARTS READILY AVAILABLE FROM LOCAL SUPPLIERS FOR REPAIRING MECHANICAL BREAKDOWNS? ☐ Yes ☐ No

B. WILL PROCESS PRODUCING WASTES BE DISCONTINUED DURING PERIODS OF EQUIPMENT FAILURE? ☒ Yes ☐ No

1.) IF NO, DESCRIBE ANTICIPATED REDUCTION IN TREATMENT EFFICIENCY DURING EQUIPMENT FAILURE.

F. RECEIVING STREAM *

1. WHAT IS THE NAME OF THE RECEIVING STREAM? Unnamed tributary

(IF NO DISCHARGE TO STREAM, CHECK HERE ☐ AND NAME THE STREAM WHICH DRAINS THE AREA)

A. TRIBUTARY OF: Park Creek

B. TRIBUTARY OF: Little Neshaminy Creek

C. MAJOR DRAINAGE BASIN:

☒ DELAWARE ☐ POTOMAC ☐ ALLEGHENY
☐ SUSQUEHANNA ☐ LAKE ERIE ☐ MONONGAHELA
☐ GENESEE ☐ OHIO

2. DESCRIBE THE EXACT POINT(S) OF DISCHARGE:

40 DEG, 13 MIN, 45 SEC. LATITUDE

75 DEG, 13 MIN, 42 SEC. LONGITUDE

A. WATERSHED AREA ABOVE POINT OF DISCHARGE IS

<0.10 SQUARE MILES.

3. WHAT IS THE:

1.) IF NO, WILL SPARE PARTS BE STOCKED AT THE TREATMENT PLANT FOR ALL CRITICAL MECHANICAL UNITS? [X] Yes [ ] No

2.) IF NO, ARE PARTS READILY AVAILABLE FROM LOCAL SUPPLIERS FOR REPAIRING MECHANICAL BREAKDOWNS? [ ] Yes [ ] No

B. WILL PROCESS PRODUCING WASTES BE DISCONTINUED DURING PERIODS OF EQUIPMENT FAILURE? [X] Yes [ ]

1.) IF NO, DESCRIBE ANTICIPATED REDUCTION IN TREATMENT EFFICIENCY DURING EQUIPMENT FAILURE.

F. RECEIVING STREAM *

1. WHAT IS THE NAME OF THE RECEIVING STREAM? Unnamed tributary

(IF NO DISCHARGE TO STREAM, CHECK HERE [ ] AND NAME THE STREAM WHICH DRAINS THE AREA)

A. TRIBUTARY OF: Park Creek

B. TRIBUTARY OF: Little Neshaminy Creek

C. MAJOR DRAINAGE BASIN:

[X] DELAWARE [ ] POTOMAC [ ] ALLEGHENY
[ ] SUSQUEHANNA [ ] LAKE ERIE [ ] MONONGAHELA
[ ] GENESEE [ ] OHIO

2. DESCRIBE THE EXACT POINT(S) OF DISCHARGE:

40 DEG, 13 MIN, 45 SEC. LATITUDE

75 DEG, 13 MIN, 42 SEC. LONGITUDE

A. WATERSHED AREA ABOVE POINT OF DISCHARGE IS

<0.10 SQUARE MILES.

3. WHAT IS THE:

A. MINIMUM 7-CONSECUTIVE-DAY FLOW OCCURRING ONCE IN 10 YEARS?

N/A CUBIC FEET PER SECOND

B. MINIMUM STREAM FLOW? N/A CUBIC FEET PER SECOND

* ATTACH A U. S. GEOLOGICAL SURVEY 7.5' OR 15' QUADRANGLE MAP SHOWING EXACT POINT(S) OF DISCHARGE.

BLE INFORMATION	☐ EXISTING ☐ PROPOSED	☒ EXISTING ☐ PROPOSED	☐ EXISTING ☐ PROPOSED
JNCTION	Storage of: ☒ Untreated Waste Water ☐ Treated Waste Water	Storage of: ☒ Untreated Waste Water ☐ Treated Waste Water	Storage of: ☐ Untreated Waste Water ☐ Treated Waste Water
DM: (Indicate Unit)	BUILDING 2	Scrubber	
	☐	☐	☐
ne	☒	☒	☐
	☐	☐	☐
ked)	☐	☐	☐
(Vert.: Horiz.)	1:	1:	1:
(Vert.: Horiz.)	1:	1:	1:
(Ft.)			
., IF ANY			
NING MATERIAL			
(Ft.)	13	2.5	
(Ft.)		2.5	
(Ft.)	5.0		
ERATING DEPTH (Ft.)	NA	1.8	
AVAILABLE DEPTH (Ft.)	NA	2.5	
(Ft.)	NA	0.5	
RATING CAPTY. (Gal.)	1500	84	
OF 9-1, 9-1A, & 9-1B	COMPUTE THE TOTAL FOR ALL UNITS HERE:		6204
M AVAILABLE CAPTY. (Gal.)	2000	120	
(MGD)	0.000075	0.008	
ON (Hrs./Day)	24	24	
(MGD)	-	0.008	
ON (Hrs./Day)	TO TRUCK	24	
E (Hrs.)	-	0.24	
M (Hrs.)			

METHOD OF WATER LEVEL CONTROL: FOR T-4 SEE MODULE 9-1A, T-3.

: MODULE 9-1A, T-2.

CUMULATION IN THE UNIT BE MINIMIZED? wastewater characteristics

hat sedimentation will not occur.

E DIVERTED FROM THE BASIN? ☒ Yes ☐ No

ED AGAINST WAVE ACTION? ☒ Yes ☐ No

IF PORTIONS OF MODULE 5 IF AN EARTHEN BASIN IS USED

EP-BWC-51.9

DATE PREPARED 6/10/82

DATE REVISED

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL
MODULE 9 – FLOW EQUALIZATION AND STORAGE BASINS

For Department Use Only

TABLE I COMPLETE ALL APPLICABLE INFORMATION			UNIT T-4 [ ] EXISTING [ ] PROPOSED	UNIT S-1 [X] EXISTING [ ] PROPOSED	UNI [ ] [ ]
INDICATE FUNCTION			Storage of: [X] Untreated Waste Water [ ] Treated Waste Water	Storage of: [X] Untreated Waste Water [ ] Treated Waste Water	Stor [ ] [ ]
WASTE ENTERS THIS UNIT FROM: (Indicate Unit)			BUILDING 2	Scrubber	
MATERIALS AND CHARACTERISTICS	1. a. CONCRETE		[ ]	[ ]	
	b. Polyethylene		[X]	[X]	
	c.		[ ]	[ ]	
	d. EARTHEN (Excavation, Diked)		[ ]	[ ]	
	EARTHEN BASINS ONLY (1) INSIDE SLOPE	(Vert.: Horiz.)	1:	1:	1:
	EARTHEN BASINS ONLY (2) OUTSIDE SLOPE	(Vert.: Horiz.)	1:	1:	1:
	EARTHEN BASINS ONLY (3) BERM WIDTH	(Ft.)			
	EARTHEN BASINS ONLY (4) LINING MATERIAL, IF ANY				
	EARTHEN BASINS ONLY (5) THICKNESS OF LINING MATERIAL				
AVERAGE DIMENSIONS	2. a. LENGTH	(Ft.)	13	2.5	
	b. WIDTH	(Ft.)		2.5	
	c. OR DIAMETER	(Ft.)	5.0		
	d. DEPTH (1) NORMAL OPERATING DEPTH	(Ft.)	NA	1.8	
	d. DEPTH (2) MAXIMUM AVAILABLE DEPTH	(Ft.)	NA	2.5	
	e. FREEBOARD	(Ft.)	NA	0.5	
DESIGN DATA	3. a. CAPACITY (1) NORMAL OPERATING CAPTY.	(Gal.)	1500	84	
	a. CAPACITY (2) TOTAL OF 9-1, 9-1A & 9-1B		COMPUTE THE TOTAL FOR ALL UNITS HERE:		
	a. CAPACITY (3) MAXIMUM AVAILABLE CAPTY.	(Gal.)	2000	120	
	b. DISCHARGE TO UNIT (1) Flow	(MGD)	0.000075	0.008	
	b. DISCHARGE TO UNIT (2) DURATION	(Hrs./Day)	24	24	
	c. DISCHARGE FROM UNIT (1) Flow	(MGD)	-	0.008	
	c. DISCHARGE FROM UNIT (2) DURATION	(Hrs./Day)	TO TRUCK	24	
	d. DETENTION (1) AVERAGE	(Hrs.)	-	0.24	
	d. DETENTION (2) MAXIMUM	(Hrs.)			

A. GENERAL INFORMATION

1. DESCRIBE OUTLET AND METHOD OF WATER LEVEL CONTROL: FOR T-4 SEE MODULE 9-1A, T-

FOR S-1 SEE MODULE 9-1A, T-2.

INDICATE FUNCTION			[X] Untreated Waste Water [ ] Treated Waste Water	[X] Untreated Waste Water [ ] Treated Waste Water	[ ] Untreated Waste Water [ ] Treated
WASTE ENTERS THIS UNIT FROM: (Indicate Unit)			BUILDING 2	Scrubber	
1. CHARACTERISTICS	a. CONCRETE		[ ]	[ ]	[ ]
	Polyethylene		[X]	[X]	
	c.		[ ]	[ ]	[ ]
	d. EARTHEN (Excavation, Diked)		[ ]	[ ]	[ ]
	EARTHEN BASINS ONLY (1) INSIDE SLOPE	(Vert.: Horiz.)	1:	1:	1:
	(2) OUTSIDE SLOPE	(Vert.: Horiz.)	1:	1:	1:
	(3) BERM WIDTH	(Ft.)			
	(4) LINING MATERIAL, IF ANY				
	(5) THICKNESS OF LINING MATERIAL				
2. DIMENSIONS	a. LENGTH	(Ft.)	13	2.5	
	b. WIDTH	(Ft.)		2.5	
	c. OR DIAMETER	(Ft.)	5.0		
	d. DEPTH (1) NORMAL OPERATING DEPTH	(Ft.)	NA	1.8	
	(2) MAXIMUM AVAILABLE DEPTH	(Ft.)	NA	2.5	
	e. FREEBOARD	(Ft.)	NA	0.5	
3. DESIGN DATA	a. CAPACITY (1) NORMAL OPERATING CAPTY.	(Gal.)	1500	84	
	(2) TOTAL OF 9-1, 9-1A, & 9-1B		COMPUTE THE TOTAL FOR ALL UNITS HERE:		620
	(3) MAXIMUM AVAILABLE CAPTY.	(Gal.)	2000	120	
	DISCHARGE TO UNIT (1) Flow	(MGD)	0.000075	0.008	
	(2) DURATION	(Hrs./Day)	24	24	
	c. DISCHARGE FROM UNIT (1) Flow	(MGD)	-	0.008	
	(2) DURATION	(Hrs./Day)	TO TRUCK	24	
	d. DETENTION (1) AVERAGE	(Hrs.)	-	0.24	
	(2) MAXIMUM	(Hrs.)			

A. GENERAL INFORMATION

1. DESCRIBE OUTLET AND METHOD OF WATER LEVEL CONTROL: FOR T-4 SEE MODULE 9-1A, T-3.

FOR S-1 SEE MODULE 9-1A, T-2.

2. HOW WILL SEDIMENT ACCUMULATION IN THE UNIT BE MINIMIZED? wastewater characteristic will be such that sedimentation will not occur.

3. WILL SURFACE WATER BE DIVERTED FROM THE BASIN? [X] Yes [ ] N

WILL SIDES BE PROTECTED AGAINST WAVE ACTION? [X] Yes [ ] N

NOTE: COMPLETE APPROPRIATE PORTIONS OF MODULE 5 IF AN EARTHEN BASIN IS USED.

ER-SWQ-51.9

DATE PREPARED 6/10/82

DATE REVISED

COMMONWEALTH OF PENNSYLVANIA
DEPARTMENT OF ENVIRONMENTAL RESOURCES
WATER QUALITY MANAGEMENT

WATER POLLUTION CONTROL

MODULE 9 – FLOW EQUALIZATION AND STORAGE BASINS

For Department Use Only

TABLE I

COMPLETE ALL APPLICABLE INFORMATION

			UNIT T-1D	UNIT T-2	UNIT T
			[X] EXISTING [X] PROPOSED	[ ] EXISTING [X] PROPOSED	[X] EXI [ ] PRO
	INDICATE FUNCTION		Storage of: [ ] Untreated Waste Water [X] Treated Waste Water	Storage of: [X] Untreated Waste Water [ ] Treated Waste Water	Storage o [X] Untr Waste [ ] Treat
	WASTE ENTERS THIS UNIT FROM: (Indicate Unit)		T-1C	Bldg. 2	Bldg.
MATERIALS AND CHARACTERISTICS	1. a. CONCRETE WITH EPOXY COATING		[X]	[ ]	
	b. POLYETHYLENE		[ ]	[ ]	
	c. POLYPROPYLENE		[ ]	[X]	
	d. EARTHEN (Excavation, Diked)		[ ]	[ ]	
	EARTHEN BASINS ONLY (1) INSIDE SLOPE	(Vert.: Horiz.)	1:	1:	1:
	(2) OUTSIDE SLOPE	(Vert.: Horiz.)	1:	1:	1:
	(3) BERM WIDTH	(Ft.)			
	(4) LINING MATERIAL, IF ANY				
	(5) THICKNESS OF LINING MATERIAL				
AVERAGE DIMENSIONS	2. a. LENGTH	(Ft.)	7.0	8.0	1
	b. WIDTH	(Ft.)	3.25	4.0	
	c. OR DIAMETER	(Ft.)			
	d. DEPTH (1) NORMAL OPERATING DEPTH	(Ft.)	3.0	2.5	
	d. DEPTH (2) MAXIMUM AVAILABLE DEPTH	(Ft.)	5.0	4.0	
	e. FREEBOARD	(Ft.)	2.0	1.5	
DESIGN DATA	3. a. CAPACITY (1) NORMAL OPERATING CAPTY.	(Gal.)	510	600	1,5
	a. CAPACITY (2) TOTAL		COMPUTE THE TOTAL FOR ALL UNITS HERE:		
	a. CAPACITY (3) MAXIMUM AVAILABLE CAPTY.	(Gal.)	830	960	2,0
	b. DISCHARGE TO UNIT (1) Flow	(MGD)	0.052*	0.0003	0.00
	b. DISCHARGE TO UNIT (2) DURATION	(Hrs./Day)	24	24	
	c. DISCHARGE FROM UNIT (1) Flow	(MGD)	0.052*	0.0003	
	c. DISCHARGE FROM UNIT (2) DURATION	(Hrs./Day)	24	24	TO T
	d. DETENTION (1) AVERAGE	(Hrs.)	0.24	48	
	d. DETENTION (2) MAXIMUM	(Hrs.)			

*INCLUDES RECIRCULATION

A. GENERAL INFORMATION

1. DESCRIBE OUTLET AND METHOD OF WATER LEVEL CONTROL: FOR T-1D SEE MODULE 9-1.

FOR T-2: PUMPS OPERATED BY FLOAT CONTROL -- FOR T-3 TANK IS PUMPED OUT T
WHEN IT REACHES THE 1500 GAL. LEVEL (VISUAL)

2. HOW WILL SEDIMENT ACCUMULATION IN THE UNIT BE MINIMIZED? wastewater characteristic

			[X] PROPOSED	[X] PROPOSED	[ ] PROPO
	INDICATE FUNCTION		Storage of: [ ] Untreated Waste Water [X] Treated Waste Water	Storage of: [X] Untreated Waste Water [ ] Treated Waste Water	Storage of: [X] Untreate Waste Wa [ ] Treated W
	TE ENTERS THIS UNIT FROM: (Indicate Unit)		T-1C	Bldg. 2	Bldg. 2
MATERIALS AND CHARACTERISTICS	1. a. CONCRETE WITH EPOXY COATING		[X]	[ ]	[ ]
	b. POLYETHYLENE		[ ]	[ ]	[ ]
	c. POLYPROPYLENE		[ ]	[X]	[ ]
	d. EARTHEN (Excavation, Diked)		[ ]	[ ]	[ ]
	EARTHEN BASINS ONLY (1) INSIDE SLOPE	(Vert.: Horiz.)	1:	1:	1:
	(2) OUTSIDE SLOPE	(Vert.: Horiz.)	1:	1:	1:
	(3) BERM WIDTH	(Ft.)			
	(4) LINING MATERIAL, IF ANY				
	(5) THICKNESS OF LINING MATERIAL				
AVERAGE DIMENSIONS	2. a. LENGTH	(Ft.)	7.0	8.0	13
	b. WIDTH	(Ft.)	3.25	4.0	
	c. OR DIAMETER	(Ft.)	--		5.
	d. DEPTH (1) NORMAL OPERATING DEPTH	(Ft.)	3.0	2.5	NA
	(2) MAXIMUM AVAILABLE DEPTH	(Ft.)	5.0	4.0	NA
	e. FREEBOARD	(Ft.)	2.0	1.5	NA
DESIGN DATA	3. a. CAPACITY (1) NORMAL OPERATING CAPTY.	(Gal.)	510	600	1,500
	(2) TOTAL		COMPUTE THE TOTAL FOR ALL UNITS HERE:		
	(3) MAXIMUM AVAILABLE CAPTY.	(Gal.)	830	960	2,000
	b. DISCHARGE TO UNIT (1) Flow	(MGD)	0.052*	0.0003	0.00007
	(2) DURATION	(Hrs./Day)	24	24	24
	c. DISCHARGE FROM UNIT (1) Flow	(MGD)	0.052*	0.0003	-
	(2) DURATION	(Hrs./Day)	24	24	TO TRUC
	d. DETENTION (1) AVERAGE	(Hrs.)	0.24	48	
	(2) MAXIMUM	(Hrs.)			

*INCLUDES RECIRCULATION

A. GENERAL INFORMATION

1. DESCRIBE OUTLET AND METHOD OF WATER LEVEL CONTROL: FOR T-1D SEE MODULE 9-1.

FOR T-2: PUMPS OPERATED BY FLOAT CONTROL -- FOR T-3 TANK IS PUMPED OUT TO TR
WHEN IT REACHES THE 1500 GAL. LEVEL (VISUAL)

2. HOW WILL SEDIMENT ACCUMULATION IN THE UNIT BE MINIMIZED? wastewater characteristics wi

be such that sedimentation will not occur

WILL SURFACE WATER BE DIVERTED FROM THE BASIN? [X] Yes [ ] No

4. WILL SIDES BE PROTECTED AGAINST WAVE ACTION? [X] Yes [ ] No

NOTE: COMPLETE APPROPRIATE PORTIONS OF MODULE 5 IF AN EARTHEN BASIN IS USED.

45. June 21, 1982 Letter from PADEP to DRBC Regarding Application #4682201

Provided by: PADEP

Department of Environmental Resources
1875 New Hope Street
Norristown, PA 19401
215 631-2405

June 21, 1982

The Operations Branch
Delaware River Basin Commission
P.O. Box 7360
West Trenton, New Jersey 08628

Attention: Mr. David Everett
Supervising Civil Engineer

Re: 4682201
Solid State Scientific, Inc.
Montgomery Township
Montgomery County

Gentlemen:

The referenced application was received on June 11, 1982 and will be reviewed shortly by the Norristown Office of the Pennsylvania Department of Environmental Resources. Therefore, we are forwarding, for the Commission's review, a copy of the applicant's application form, modular report, and plans for application No. 4682201 from Solid State Scientific, Inc. for the construction of an industrial waste treatment plant to discharge treated waste into an unnamed tributary of Park Creek located in Montgomery Township, Montgomery County. The "Applicant's Statement-Project Review Fee" forms are attached, the fee was submitted with the previous application.

Since we have not completed our review of this application, it may be necessary to require revised and/or supplemental information regarding this project. Such additional information will be forwarded to the Commission.

Issuance of a permit is being withheld pending the review and approval of this project by the Commission and our Department.

Very truly yours,

RICHARD L. HINKLE
Chief, Permits Section

Enclosure: Project Review
Application
Plans
Preparedness Prevention and Contingency Plan

215 631-2411

PA
1875 New Hope St
Norristown

1-20-82

Solid State Scientific, Inc.
Commerce Drive
Montgomeryville, PA 18936

Attention: Mr. Al J. Corace
Manager, Plant Services

Re: Industrial Waste Application No. 4681202
Solid State Scientific, Inc.
Montgomery Township, Montgomery County

Gentlemen:

As previously discussed, we believe that the treatment system proposed in the subject application is insufficient to meet the effluent limits of your NPDES permit. We acknowledge that you have released Betz Converse Murdoch as your engineering consultant. Therefore, we are returning your application. If a revised application is submitted within six (6) months, no new filing fee will be required.

Very truly yours,

JAMES F. RIMPLE
Sanitary Engineer

cc: DRBC
Joseph Feola
James Morris
Ca 30 C18

JFR:amo

46. June 29, 1982 Letter from SSS to PADEP Regarding Application #4682201

Provided by: PADEP

SOLID STATE SCIENTIFIC INC.

MONTGOMERYVILLE, PENNA. 18936 ☎ 215-855-840
TWX 510-661-726

June 29, 1982

Commonwealth of Pennsylvania
DEPARTMENT OF ENVIRONMENTAL RESOURCES
1875 New Hope Street
Norristown PA 19401

RE: Application No. 4682201
Montgomery Township
Montgomery County

ATTENTION: Mr. Lawrence H. Lunsk
SOLID WASTE REGIONAL FACILITIES SUPERVISOR

Dear Mr. Lunsk:

In response to our telephone conversation on June 25, 1982, there will be no solid waste generated at our proposed wastewater treatment plant. We will be collecting concentrated acid waste in two (2) 2000 gallon tanks. This liquid waste will be truck hauled by Waste Conversion, Resources Technology, or equal.

The primary discharge will only require ph adjustment. A secondary stream of 300 gallons per day will be pumped through limestone columns to reduce the fluoride waste to CaF_2. There will be no sludge from this process.

If you have any questions, please call me at (215) 855-8400, Ext. 401.

Very truly yours,

Craig S. Phillips
FACILITY MANAGER

47. March 25, 1983 Letter from SSS to PADEP Regarding NPDES No. PA0050130 and PADEP's March 16th Letter

Provided by: PADEP

MONTGOMERYVILLE, PENNA. 18936 ■ 215-955-8400
TWX 510-661-7267

March 25, 1983

Commonwealth of Pennsylvania
Department of Environment Resources
1875 New Hope Street
Norristown, PA 19401

Attention: Mr. James Ridolfi

RE: NPDES No. PA0050130 and your letter dated March 16, 1983

Dear Mr. Ridolfi:

Effective March 4, 1983 we have temporarily discontinued discharging treated process waste from our wastewater treatment plant at Building No. 2. This is Discharge 100. As you are aware a small portion of Discharge 300 was originally scheduled to be transferred underground from Building No. 3 to Building No. 2 and become part of Discharge 100. This was not implemented because an eighteen month survey of Discharge 300 showed this discharge to be extremely low in ppm of those criteria being tested. We have been testing Discharge 300 for the same criteria as Discharge 100 to assure you that we can meet the total pounds per day criteria of Discharge 100. The portion of Discharge 300 that was originally scheduled to be part of Discharge 100, is equal to 12% of the design capacity of the wastewater treatment plant.

As we discussed on the phone, until we restart our production processing we cannot obtain a representative sample of our treated waste. We will resample Discharge 100 for total toxic organics when production is resumed.

If you have any questions, please call me at 657-8400, Ext. 3361.

Best regards,

Craig Phillips

Craig Phillips
Facility Manager

and become part of Discharge 100. This was not implemented because an eighteen month survey of Discharge 300 showed this discharge to be extremely low in ppm of those criteria being tested. We have been testing Discharge 300 for the same criteria as Discharge 100 to assure you that we can meet the total pounds per day criteria of Discharge 100. The portion of Discharge 300 that was originally scheduled to be part of Discharge 100, is equal to 12% of the design capacity of the wastewater treatment plant.

As we discussed on the phone, until we restart our production processing we cannot obtain a representative sample of our treated waste. We will resample Discharge 100 for total toxic organics when production is resumed.

If you have any questions, please call me at 657-8400, Ext. 3361.

Best regards,

Craig Phillips

Craig Phillips
Facility Manager

CP/erw

CC: Feola, PADER
M. Hinsley, S.S.S.I.

48. August 30, 1983 Letter from PADEP to SSS Regarding Industrial Waste/NPDES Permit # PA005130

Provided by: PADEP

August 30, 1983

Mr. Craig Phillips
Corporate Facility Management
Solid State Scientific Inc.
3900 Welsh Road
Willow Grove, PA 19090

Dear Craig,

This is to confirm the results of [illegible] conducted on July 14, 1983 which revealed the presence of [illegible] in the effluent.

A copy of the sample results [illegible]

The presence of metals in your discharge should be investigated and eliminated. By October 1, 1983 notify this office of the results of your investigation and any action you intend to take to eliminate the metals.

If you have any questions, please [illegible]

Very truly yours,

JOSEPH FELLA
Water Quality Specialist

JF:lp:hw

cc: EPA (Attn: 3A52)
Div. of Permits and [illegible]
Re 30 2LP1

ENCLOSURE

49. January 22, 1985 Letter from SSS to PADEP Regarding Discharge 300

Provided by: PADEP

SOLID STATE SCIENTIFIC

SOLID STATE SCIENTIFIC, INC.

3900 Welsh Road
Willow Grove, PA 1909
(215) 657-8400 TWX 51

January 22, 1985

Jim Ridolfi
Sanitary Engineer
Permits Section
Commonwealth of Pennsylvania
Department of Environmental Resources
1875 New Hope Street
Norristown, PA 19401

Dear Mr. Ridolfi:

Solid State Scientific has had the priority pollutant analysis done on Montgomeryville Discharge 300 as you requested by phone on 11/15/8 Discharge 300 will be the only discharge from our Montgomeryville facility after closure of Building #2. Discharge 300 consists of reverse osmosis reject water, noncontact cooling water and rinse water from Building #3. Enclosed please find the priority pollutant analysis performed on Discharge 300.

If you have any further questions, please contact me at (215) 657-840 Ext. 3367.

Sincerely,

Josephine Hfstand

Josephine Hfstand
Chemical Technician

JH/jjj
Enc.

cc: Mike Hinsley

CLIENT

SOLID STATE SCIENTIFIC
ATTN JOSEPHINE HASTINGS
5900 WELSH RD
WILLOWGROVE PA 19090

FINAL REPORT RE:

This is the final report for the samples which were received [illegible]

BCM NUMBER		47[illegible]98
CLIENT SAMPLE ID		[illegible]02
DATE SAMPLED		12/[illegible]/84
DATE RECEIVED		12/[illegible]/84
TEST AND UNITS	(PRAL, METHOD)	
SILVER MG/L	(84)	0.02
ARSENIC (GF) MG/L	(12)	0.006
BERYLLIUM MG/L	(15)	<0.01
CADMIUM MG/L	(16)	0.0
CYANIDE MG/L	(04)	0.00
CHROMIUM HEX CR MG/L	(19)	0.02
COPPER MG/L	(24)	0.0
GC/MASS SPECT.	(870)	
ACID EXTRACTABLES (HT,D)		[illegible]
BASE NEUTRALS (HT,D)		[illegible]
PESTICIDES/PCB'S (HT,D)		[illegible]

PAYMENT IS DUE UPON RECEIPT OF INVOICE; PAST DUE AMOUNTS OVER 30 DAYS WILL BE SUBJECT TO AN INTEREST RATE O

CLIENT

SOLID STATE SCIENTIFIC [illegible]

SCN NUMBER		[illegible]
VOLATILES MI/DY		[illegible]
MERCURY MG/L	(3)	[illegible]
METAL DIGESTION (HC) MI/DY	[illegible]	[illegible]
NICKEL MG/L	(54)	[illegible]
LEAD MG/L	(29)	[illegible]
PHENOLS, as PHENOL MG/L	(37)	[illegible]
ANTIMONY MG/L	[illegible]	0.26
SELENIUM AS SE MG/L	[illegible]	[illegible]
THALLIUM MG/L	(40)	[illegible]
ZINC MG/L	[illegible]	[illegible]

LAB CERT. : EPA/CA-[illegible] NJ-[illegible] [illegible] EPA BULK ASBESTOS [illegible]
AIHA/NIOSH-[illegible]

METHODS : 11) EPA : 204.1 [illegible] EPA : [illegible] [illegible] EPA : [illegible] 16) EPA : 213.[illegible]
17) EPA : 216.1 24) EPA : [illegible] [illegible] EPA : [illegible] 32) EPA : 245.5
34) EPA : 249.[illegible] 36) EPA : [illegible] [illegible] EPA : [illegible] 40) EPA : 279.[illegible]
41) EPA : 289.[illegible] [illegible] EPA : [illegible] [illegible] EPA : [illegible]

EXHIBIT II - COMPOUND LIST

SAMPLE IDENTIFIER: 21498
COMPUCHEM SAMPLE NUMBER: 39609

	VOLATILE ORGANICS	CONCENTRATION (UG/L)	DETECTION LIMIT (UG/L)	SCAN NUMBER
1V.	CHLOROMETHANE	BDL	10	
2V.	VINYL CHLORIDE	BDL	10	
3V.	CHLOROETHANE	BDL	10	
4V.	BROMOMETHANE	BDL	10	
5V.	ACROLEIN	BDL	100	
6V.	ACRYLONITRILE	BDL	100	
7V.	METHYLENE CHLORIDE	BDL	10	
8V.	TRICHLOROFLUOROMETHANE	BDL	10	
9V.	1,1-DICHLOROETHYLENE	BDL	10	
10V.	1,1-DICHLOROETHANE	BDL	10	
11V.	TRANS-1,2-DICHLOROETHYLENE	BDL	10	
12V.	CHLOROFORM	BDL	10	
13V.	1,2-DICHLOROETHANE	BDL	10	
14V.	1,1,1-TRICHLOROETHANE	BDL	10	
15V.	CARBON TETRACHLORIDE	BDL	10	
16V.	BROMODICHLOROMETHANE	BDL	10	
17V.	1,2-DICHLOROPROPANE	BDL	10	
18V.	TRANS-1,3-DICHLOROPROPENE	BDL	10	
19V.	TRICHLOROETHYLENE	BDL	10	
20V.	BENZENE	BDL	10	
21V.	CIS-1,3-DICHLOROPROPENE	BDL	10	
22V.	1,1,2-TRICHLOROETHANE	BDL	10	
23V.	DIBROMOCHLOROMETHANE	BDL	10	
24V.	BROMOFORM	BDL	10	
25V.	1,1,2,2-TETRACHLOROETHYLENE	BDL	10	
26V.	1,1,2,2-TETRACHLOROETHANE	BDL	10	
27V.	TOLUENE	BDL	10	
28V.	CHLOROBENZENE	BDL	10	
29V.	ETHYLBENZENE	BDL	10	
30V.	2-CHLOROETHYL VINYL ETHER	BDL	10	
31V.	DICHLORODIFLUOROMETHANE†	BDL		
32V.	BIS(CHLOROMETHYL)ETHER†	BDL		

BDL=BELOW DETECTION LIMIT

†See Data Report Notice

50. March 4, 1985 Letter from SSS to PADEP Regarding Building #2 Discharges

Provided by: PADEP

SOLID STATE SCIENTIFIC

SOLID STATE SCIENTIFIC, INC.

3900 Welsh Road
Willow Grove, PA 19090
(215) 657-8400 TWX 510-

March 4, 1985

Jim Ridolfi
Sanitary Engineer
Permits Section
Commonwealth of Pennsylvania
Department of Environmental Resources
1875 New Hope Street
Norristown, PA 19401

Dear Mr. Ridolfi:

As indicated in my letter of November 27, 1984, the Montgomeryville Building #2 discharges were discontinued in early 1985. On February 23, 1985, Montgomeryville discharges #200 and #400 were shut down. Discharge #300 from Building #3 is the only remaining discharge from SSSI's Montgomeryville facility. If you have any further questions, please call me at (215) 657-8400 Ext. 3367.

Regards,

Josephine Histand

Josephine Histand

JH/jjj

cc: Mike Hinsley

Jim LaRayne says entire operation to close in Willow Grove

51. May 21, 1985 Storch Engineers Field Report #1

Provided by: ALLEGRO

STORCH ENGINEERS
220 RIDGEDALE AVENUE. P.O. BOX 267. FLORHAM PARK. NJ 07932
(201) 822-2600

Field Report No. 1, S.E. #1559 May 21, 1985

Site Location: Building No. 2
Solid State
Scientific, Inc. (SSSI)
Montgomeryville, PA

Weather: Cloudy, Occasional Drizzle
Temp: 80°
Winds: Calm

The purpose of being on site this date was to observe the decontamination of the cascading tanks in the waste treatment plant and to take samples of any residue in the cascading tanks and the two 1000 gallon fiberglass tanks.

I arrived at the site at 12:15 pm and met Leif Liberg of AETC and Josephine Histand of SSSI in the drum storage area on the northerly side of the site. Leif said the drums in the area contained 97.5% Sulphuric acid and weaker concentrations of other acids (i.e. chromic) and various other compounds. Leif Liberg brought me around to the southerly side of the site fronting on Enterprise Road. Located in this portion of the site are the waste treatment plant and the solvent storage tank timber walled pit. Leif stated 100 gallons of trichloroethylene was added to the solvent storage tank to loosen the sludge in the tank.

Eldredge, Inc. had a 5000 gallon vacuum truck and a service truck with a generator located in the area. The cascading tanks were being cleaned at that time. A water jet was being used to wash out the tanks and wash water was sucked into the vacuum truck. The walls and floor of the cascading tanks were squeegeed during the vacuuming to minimize the amount of liquid remaining in the tanks.

I entered the roof of the isolated portion of the treatment plant where the 1000 gal. fiberglass tanks were located to determine if any liquid was available for sampling. Small amounts of liquid could be seen in the bottom of the tanks in the rib depressions of the tanks. Due to the

location of the wood joists around and over the manhole openings, I felt that I would not be able to enter the tanks myself.

Upon exiting the building, I told Leif Liberg that I would not be able to enter the tanks but that liquid was available for sampling if he could get someone into the tanks.

Prior to sampling the tanks, Leif inquired about the other samples to be taken. I informed him that one soil sample would be taken in the drum storage shed following the removal of bituminous pavement and pavement subgrade soil, to the required depth, and one soil sample would be taken from the soil beneath the gravel layer in the timber walled waste solvent tank pit following the removal of the solvent tank and pumping the pit dry. The pit contained approximately 12" of water.

Leif inquired if the sample from the solvent pit could be obtained with the tank in place. Since there appeared to be room to work around the tank, I told Leif that we could try but that I would have to confirm this with Geri Murtha. Geri saw no problem, if we could get three locations for the composite sample within the pit. I told Leif they could start pumping the pit dry while I took the tank samples with the two men from Eldredge, Inc.

Samples from the two fiberglass tanks were taken by Joe Gazillo of Eldredge, Inc. who was small enough to enter the tanks. He used one clean paper towel in each tank to swab up liquid for sample SSSI-1. Liquid absorbed in the paper towel was squeezed into the sample bottle.

Upon exiting the tank building, pumping of the rain water and ground water had begun.

A Trident submersible sump pump, 115 volts, 60 Hz, 13 amps with a 2" discharge was being used to pump out the pit. Water was discharged directly to the creek on the southerly side of the site. I inquired from Josephine Histand about the nature of this water being discharged into the creek since their was an oily sheen on the surface of the water

in the pit. Josephine stated the Pa.D.E.R. had regularly taken samples from the water and had not cited SSSI for any violations. Leif Liberg stated that the pit had been historically pumped out by discharging the liquid into the creek according to Josephine.

It is assumed that the black, oily texture of the water in the pit was caused from creosote leaching out of the timber railroad tie walls of the pit.

The attempt to take the sample in the pit proved futile. Siltation of the voids in the gravel made pumping difficult even after a deeper sump was excavated into the gravel layer for drainage. A depth of approximately 12" of gravel was excavated in one location in the gravel but ground water and digging difficulty prevented accessibility to the underlying soil.

During the attempt to sample the pit, Eldredge, Inc. moved the vacuum truck to the drum storage area and pumped out the remaining liquid in the 43 drums in the area. The fiberglass tank in the area was washed with the water jet and wash water was pumped out into the vacuum truck. I left the site at 4:30 pm.

Sample SSSI-1 was packaged and sent out this day to S-R Analytical via Federal Express by Dave Scaturo.

Gregory A. Anfuso,

52. September 12, 1985 Storch Engineers Memo Regarding Building #2 Closure

Provided by: ALLEGRO

STORCH ENGINEERS **MEMORANDUM**

To: Josephine Histrand
Solid State Scientific Inc.
From: William L. Deane

Date: Sept. 12, 1985

Project: 1559 Solid State Scientific Montgomeryville, PA

Subject: Building No. 2 RCRA Closure

Copy To:

Summary of Findings

Storch Engineers has provided services for the closure of Building No. 2 of Solid State Scientific, Inc. We have reviewed the Closure Plan dated December 1984 and revised March 1985 and have found it to be satisfactory. Field inspection services, sample gathering, the assessment of the laboratory analysis results were provided for the Waste Treatment Plant, the Organic Solvent Waste Storage Tank Pit, and the Drum Storage Area.

Laboratory Analysis Results

Sample laboratory results were received from S-R Analytical Inc. on June 3, 1985 for the liquid grab sample SSSI-1 and on June 20, 1985 for the soil grab samples SSSI-2 and SSSI-3.

The samples did not indicate elevated levels in the waste solvent storage tank pit (SSSI-3) analyzed for volatile organics or in the waste water treatment plant area (SSSI-1) analyzed for pH.

Chromium levels of 47 ppm were detected in the drum storage area grab soil sample SSSI-2, which was analyzed for EP toxicity. The allowable EP Toxicity limit is 5.0 ppm for chromium. Further excavation was required in the drum storage area to remove the hazardous soil material.

Sample laboratory results were received from S-R Analytical Inc. on August 20, 1985 for samples collected on July 26, 1985 after the further excavation. Neither of the two samples had levels above those allowed for EP Toxicity.

Waste Treatment Plant

Inspection of the cascading tanks following the water jet cleansing and vacuuming of these tanks left insufficient liquid for sampling, therefore it was assumed the cascading tanks were sufficiently cleansed of hazardous material. The sample (SSSI-1) collected within the fiberglass storage tanks did not indicate pH levels indicative of hazardous material.

Waste Solvent Storage Tank

The sample (SSSI-3) gathered from the solvent tank pit (see figure 2) was shown to have no levels of hazardous materials present and the pit was backfilled.

Drum Storage Area

Following the removal of bituminous pavement and 12 inches to 16 inches of soil beneath the pavement, sample SSSI-2 was taken for EP toxicity analysis (see figure 1). Analysis of the sample showed a high level of chromium (47 ppm). It was determined that an additional foot of soil would be removed and that material from the gray soil stratum area in the southerly side of the excavation and soil beneath the 12 inches of soil to be removed would be sampled. EP Toxicity analysis of these two samples (SSSI-4 and SSSI-5) showed no remaining hazardous levels of material.

Conclusion

With the completion of the excavation of the 12 inches of soil deemed for removal in the drum storage area, the closure of the Building No. 2 Waste Treatment Plant, Bulk Solvent Storage Tank, and Drum Storage Area is complete.

53. October 17, 1989 Preliminary Assessment

Provided by: PADEP and USEPA

ORIGINAL
(Red)

RFD #24

R-585-7-9-40

ENVIRONMENTAL PRIORITIES INITIATIVE
PRELIMINARY ASSESSMENT OF
SOLID STATE SCIENTIFIC
PREPARED UNDER

TDD NO. F3-8903-66
EPA NO. PA-2443
CONTRACT NO. 68-01-7346

FOR THE

HAZARDOUS SITE CONTROL DIVISION
U.S. ENVIRONMENTAL PROTECTION AGENCY

OCTOBER 17, 1989

NUS CORPORATION
SUPERFUND DIVISION

SUBMITTED BY	REVIEWED BY	APPROVED BY
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ORIGINAL

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APPENDICES

SECTION 1

ORIGINAL (Red)

1.0 INTRODUCTION

1.1 Authorization

NUS Corporation performed this work under Environmental Protection Agency Contract No. 68-01-7346. This specific report was prepared in accordance with Technical Directive Document No. F3-8903-66 for the Solid State Scientific site, located in Montgomeryville, Montgomery County, Pennsylvania.

1.2 Scope of Work

NUS FIT 3 was tasked to conduct an Environmental Priorities Initiative (EPI) preliminary assessment of the subject site.

1.3 Summary

Solid State Scientific, Incorporated owned and operated a semi-conductor manufacturing plant at the subject site location in Montgomeryville, Montgomery County, Pennsylvania until early 1987. The date operations were begun at this plant is unknown, but they were begun at least by 1976.

The manufacturing process consisted mostly of an electroplating operation. Electroplating wastewater was treated at an on-site wastewater treatment facility and then discharged into a branch of Park Creek, which flows across the property. Solid State maintained an NPDES permit for the wastewater effluent; however, throughout most of Solid State's operation, the effluent failed to meet Pennsylvania Department of Environmental Resources (PA DER)-required water quality criteria for the permit.

Waste solvent generated in the electroplating process was stored in an underground storage tank. The remainder of Solid State's hazardous wastes, including unspecified wastes and small-quantity solvents from the plant, were stored in 55-gallon drums that were placed in an outside storage shed. Solid State, which operated under EPA ID No. PAD002278331, ceased operations at the Montgomeryville facility in 1986. At that time, Solid State also dismantled and removed the underground wastewater treatment tank.

CLOSURE - SL- 5/19/02

On-site wells - SE-5/19/02

ORIGINAL (Red)

In 1987, the Horsham Valley Development Corporation (HVDC) purchased one of the three lots that comprised the Solid State facility. The exact sizes of the lots are unknown. Prior to HVDC's purchase, a prospective buyer had installed five downgradient monitoring wells on the property. Subsequent sampling of the wells found volatile contamination in one well. The contamination was attributed to Solid State's underground solvent tank. HVDC, with approval from PA DER, removed the tank, piping, and any contaminated soils in 1987.

In May 1988, HVDC began leasing the property to the current facility occupant, EMCA, a Rohm and Haas Company. EMCA is a manufacturer of thick film pastes. Wastes generated by EMCA include small quantities of solvent and product wastes only.

Six solid waste management units (SWMUs) have been identified for the site: the acid treatment tank (building no. 2), the in-ground waste solvent tank (building no. 2), and the empty drum storage area (building no. 1) from the Solid State operation; the drum storage shed built by Solid State and later modified by EMCA; and the empty drums storage area and above-ground waste storage tanks from EMCA's operation. A more detailed description of each of the above-mentioned SWMUs and the wastes managed can be found in section 4.0 of the report.

The population within the three-mile-radius study area relies solely on groundwater for its potable supply. Except for a few isolated homes, all of the residents are served by one of four public water distribution systems: the North Penn Water Authority, the North Wales Water Authority, the Horsham Township Authority, and the Warrington Township Municipal Authority. No private domestic wells were identified within a one-mile radius of the facility.

SECTION 2

2.0 THE SITE

2.1 Location

The former Solid State facility was located at Commerce Drive and Enterprise Road in Montgomeryville, Montgomery County, Pennsylvania (see figure 2.1, page 2-2). The site is located on the United States Geological Survey (U.S.G.S.) Ambler, Pennsylvania quadrangle at coordinates 40° 13' 42" north latitude and 75° 13' 37" west longitude. In relation to the northwestern corner of the same quadrangle, the site is 3.125 inches east and 3.81 inches south.[1]

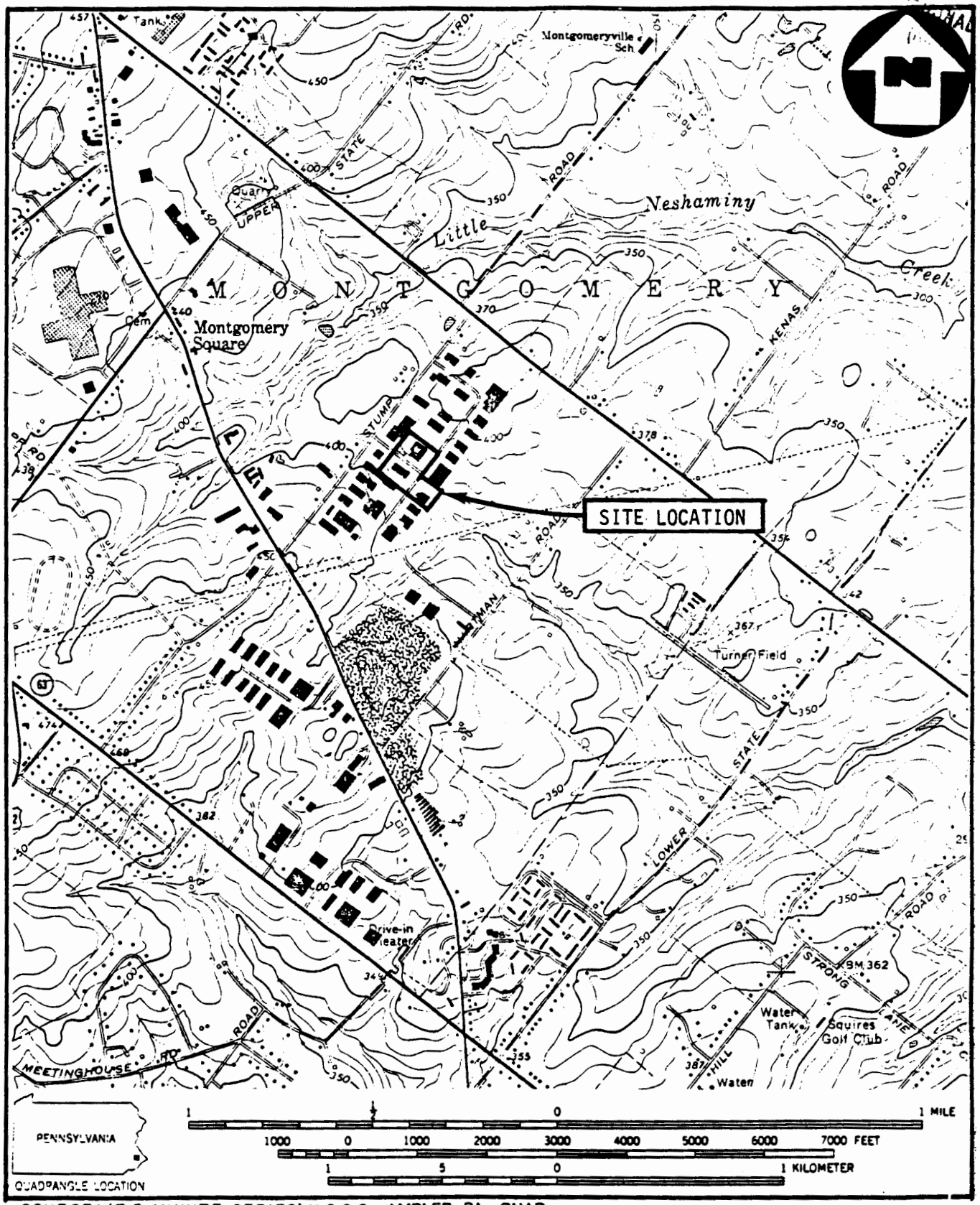
2.2 Site Layout

The former Solid State facility occupied an L-shaped property. The site is located in an industrial park and is surrounded by small industries in all directions. The facility consisted of three buildings with surrounding grounds: building no. 1 is to the south, building no. 3 is located west of building no. 1, and building no. 2 is north of building no. 3 (see figure 2.2, page 2-3).[2,3]

Building no. 1 is located on the eastern side of Commerce Drive. The building is centrally situated on the lot. A driveway and parking area wrap around the building. The building had been utilized for administrative offices. An empty drum storage area was located to the rear of the building. The property is currently occupied by the Lactona Company, and access is unrestricted.[2,3]

Building no. 3 is located on the southwestern corner of the intersection of Commerce Drive and Enterprise Road. The building is situated off-center, to the south on the lot. The northern half of the lot is a paved parking area. The building housed the manufacturing facilities. The property is currently occupied by Mayco Precision Coated Abrasives, and access is unrestricted.[2,3]

Building no. 2 is the largest facility and lot. Located on the northwestern corner of Commerce Drive and Enterprise Road, the building occupies the central portion of the lot. Access to the property is unrestricted. The building contained manufacturing facilities, waste chemical storage areas, and a wastewater treatment plant during Solid State's occupancy. The building is currently occupied by EMCA, a manufacturer of thick film pastes. The 40,000-square-foot interior space was gutted and re-designed at the onset of EMCA's occupancy; therefore, a description of the plant layout during Solid State's operations cannot be provided. During Solid State Scientific's operations, the wastewater treatment plant is believed to have been the only SWMU within the plant building.[2,3,4]



SOURCE: (7.5 MINUTE SERIES) U.S.G.S. AMBLER, PA., QUAD.

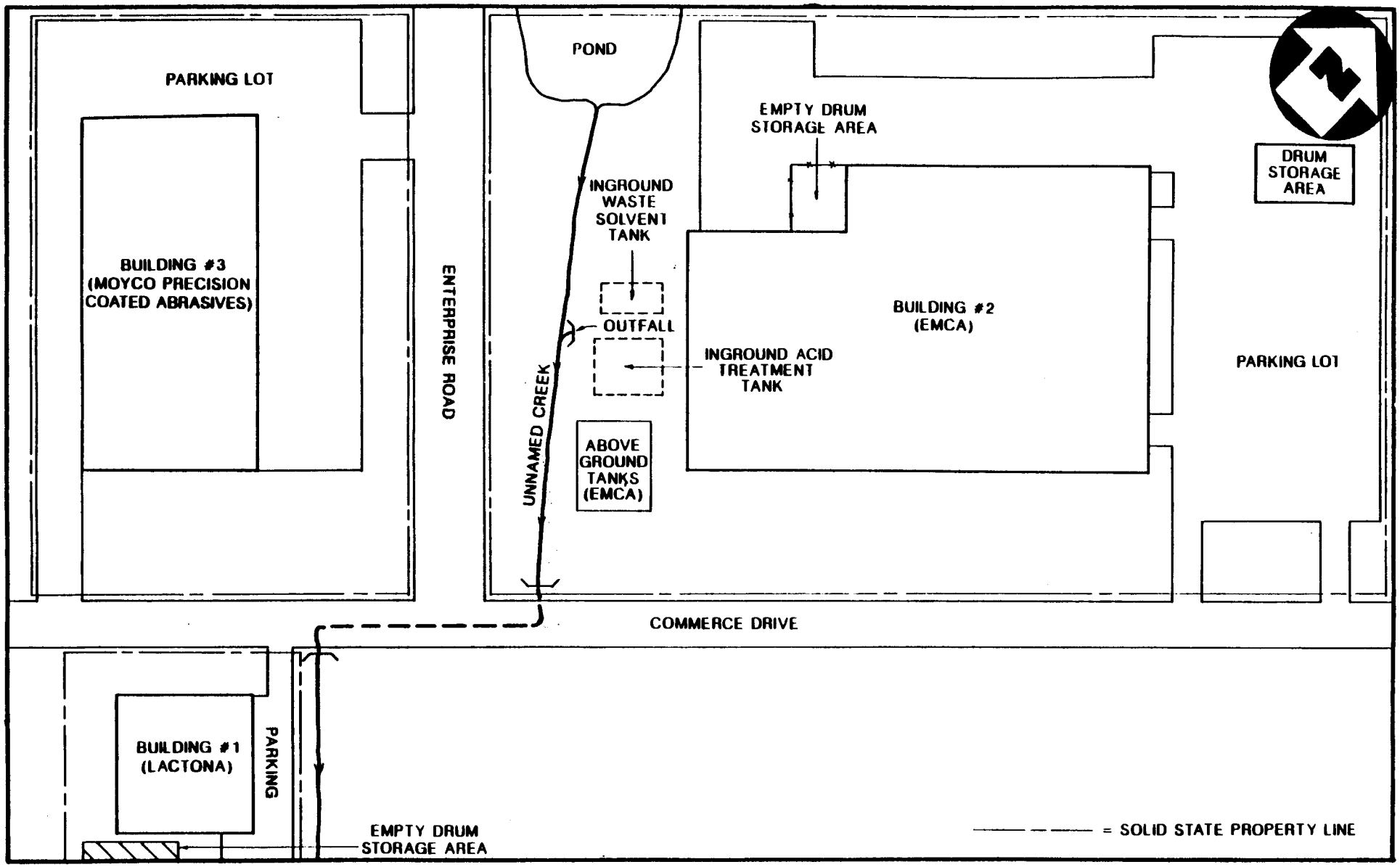
SITE LOCATION MAP

SOLID STATE SCIENTIFIC

SCALE 1: 24000

FIGURE 2.1

NUS CORPORATION



SITE SKETCH

SOLID STATE SCIENTIFIC

(NO SCALE)

FIGURE 2.2

A large paved parking lot is located adjacent to and to the north of building no. 2. In the far northwestern corner of the parking lot, approximately 100 feet from building no. 2, is a shed that is currently used for the storage of drummed raw materials and hazardous wastes. The fenced shed is 42 by 36 feet in size and has a detached roof. Entrance to the shed can be gained through a locking gate. The shed was built over the parking lot macadam and has a six-inch macadam dike around the perimeter. A second, smaller concrete pad with a four-inch concrete curb was constructed by EMCA within the shed. Hazardous materials are currently stored on the second pad. The remainder of the shed is currently utilized for raw material storage.[2]

Midway along the western face of the plant building is a small fence-enclosed area that is used by EMCA for the storage of empty 55-gallon drums.[2]

A pond is located on the southwestern corner of the property. The pond empties into a perennial creek that flows west to east across the southern end of the property. The stream flows under Commerce Drive through a culvert and re-emerges on the eastern side of Commerce Drive. A white open box marked the point of the former Solid State discharge pipe outfall.[2]

Between the creek and the southern face of the manufacturing building is a grassy open area; a waste solvent tank and an acid treatment tank for Solid State were located under this area. Both tanks have been excavated and removed. Approximately 100 feet east of this area is the former Solid State waste treatment building. The building, which includes a partially buried wing, currently houses EMCA's two above-ground waste storage tanks (see figure 2.2, page 2-3).[2,4]

The remainder of the property consists of grass-covered areas and paved parking lots.[2]

2.3 Ownership History

The building no. 2 property is currently owned by HVDC. Ownership of the building nos. 1 and 3 lots was not determined. HVDC leases the property to EMCA, a subsidiary of Rohm and Haas. HVDC purchased the property from Solid State Scientific, Incorporated in 1987. (EMCA occupied the facility on May 16, 1988.)[4]

Solid State Scientific, Incorporated owned and operated the three buildings and lots until 1987. The number of years that Solid State owned the property is unknown; however, records indicate that Solid State had occupied the site by at least 1976. Ownership prior to Solid State is also unknown.[4]

2.4 Site Use History

The current site occupant, EMCA, is a manufacturer of thick film paste for the electronics industry. Small quantities of specialty pastes are developed and produced at the facility according to client requirements. No other operator has occupied the facility under HVDC's ownership.[4]

Solid State was a manufacturer of semi-conductor devices. The manufacturing process included an electroplating operation that was the source of the majority of the wastes generated, including solvents and metal-laden wastewaters.[3]

It is not known what uses the site may have had prior to Solid State's operation and ownership.

2.5 Permit and Regulatory Action History

On August 18, 1980, Solid State Scientific, Incorporated filed a Notification of Hazardous Waste Activity with EPA for its Montgomeryville facility.[5] At that time, EPA assigned the company Identification No. PAD002278331.[6] Solid State submitted a Part A Hazardous Waste Permit Application to EPA for the subject facility in November 1980.[7] With this submission, Solid State began storing and treating wastes on site under interim status. On December 31, 1980, EPA acknowledged Solid State's Part A submission.[8] In early 1981, Solid State submitted two revisions to the 1980 Part A submission through correspondence to EPA: the addition of transportation of wastes between Solid State facilities and the deletion of three waste numbers, in a letter dated January 21, 1981; and the correction of two estimated waste quantities on the application, in a letter dated January 23, 1981.[9,10] On July 27, 1981, EPA completed the processing of the subject facility's application. Identified hazardous wastes that the facility could handle were classified as U002, U134, U154, U188, U072, U229, U239, U226, D001, and D002. Process codes that the facility could use were identified as S01, S02, and T01.[11]

ORIGINAL

After discussions with EPA, it was determined by Solid State that the facility's treated waste material, which had been monitored by NPDES Permit No. PA0050130 since January 14, 1982, could be excluded from the waste notification in the Part A submission (see appendix A).[12] In addition, several other small changes were required on the application.[12] Therefore, on January 19, 1982, Solid State submitted a new and amended Part A Hazardous Waste Permit Application to replace the 1980 submission.[3] On February 18, 1982, EPA acknowledged receipt of the new application and its affected changes. Identified hazardous wastes that the facility could now handle were classified as D002, D001, F002, F003, and F005. Process codes that the facility could use were identified as S01 and S02.[13]

On March 4, 1983, PA DER requested the submission of Part B of the Hazardous Waste Permit Application.[14] (It is not known whether the Part B was ever submitted by Solid State.) In 1984, Solid State requested a change to generator status only and requested the withdrawal of its Part A application. On December 14, 1984, PA DER informed Solid State that a closure plan for the facility must be submitted for review before the application could be returned.[15] Solid State submitted a closure plant for the Montgomeryville facility on December 21, 1984; the closure plan was received by PA DER on January 7, 1985.[16,17] Copies of the closure plan were forwarded to PA DER offices in Harrisburg, EPA Region III offices, and Montgomery Township officials for review.[17] (A copy of this closure plan can be found in appendix A.) On March 28, 1985, PA DER found the closure plan acceptable and returned Solid State's application. The facility was now considered a hazardous waste facility generator only and was no longer under interim status.[18] (Permit-related correspondence can be found in appendix A.)

CLOSURE 84-5/1916

PA DER file information indicated that at least two inspections of the facility during Solid State's operation were completed (see appendix C for hazardous waste inspection reports).[19] No Notices of Violation resulting from these or other inspections were found in site file information.

The Solid State facility held two permits during its operation at the Montgomeryville site: PA DER Air Cleaning Device Permit No. 46-399-048 and NPDES Permit No. PA0050130. Details regarding the air permit were unavailable. The NPDES permit was granted for an effluent discharge into the on-site branch of Park Creek from the facility's wastewater treatment system. According to PA DER Bureau of Water Quality file information, Solid State had continually exceeded accepted effluent water quality criteria from October 14, 1976 through January 16, 1980; during this time, the facility had maintained no discharge permit. On January 16, 1980, the NPDES permit was granted. Additional violations continued to occur from January until September 3, 1980, when Solid State submitted a revised NPDES Part I application to PA DER. A fine of $15,000 was levied and paid by Solid State for all violations from 1976 through 1980.[19,20]

After several attempts by the facility to improve and redesign the wastewater treatment system, with several different consultants, the illegal discharges continued. On January 14, 1982, a Consent Order and Agreement was signed by Solid State with PA DER. Among other things, the Consent Order noted that industrial waste discharges had exceeded several permit criteria, most notably fluorides, dissolved solids, zinc, and hexavalent chromium since September 3, 1980.[19,21] (See appendix B for a copy of the Consent Order.)

CLOSURE - SS - 5/19/02

Closure of the hazardous waste treatment and storage facilities at Solid State's Montgomeryville plant was completed on September 16, 1985; this closure was found to be in accordance with the approved plan.[22] On June 13, 1986, Solid State notified PA DER of the completion of closure of the building no. 2 generator location.[23] With each closure, engineer certifications were submitted to PA DER.[22,23] Solid State vacated the Montgomeryville location in 1986 and sold the property in 1987.[24]

On September 15, 1987, Dames and Moore, a private consultant, filed a Notification of Hazardous Waste Activity on behalf of its client, HVDC. HVDC had recently purchased the Solid State building no. 2 lot.[25] Contaminated soils from an underground storage tank had been identified earlier, when another party attempted to buy the property. The tank and contaminated soils were removed by HVDC (see section 2.6 for more details) . Dames and Moore filed the notification with EPA as a one-time generator for the removal and disposal of the soils in place on the property.[25,26]

The building no. 2 lot was leased to EMCA on May 16, 1988. No additional permit-related actions have occurred at the facility.[4]

On-site wells SS - 5/19/02

2.6 Remedial Action to Date

After the final closure of the Solid State building no. 2 facility, but before its sale, an unknown prospective buyer of the lot installed five downgradient monitoring wells at the site. Subsequent sampling of the wells revealed volatile contamination in well no. 3. (The contaminant and concentration were not available.) It was surmised that the contaminants originated from Solid State's underground waste solvent storage tank. When HVDC purchased the lot in late 1987, HVDC decided to remove the tank and its piping. A work plan, submitted to PA DER on October 13, 1987, was approved for the removal of additional contaminated soils. Soil was removed to a contaminant level of 1 ppm. The soil removal was completed in January 1988. Approximately 250 tons of soil were removed from the site. See appendix D for information relating to this remedial work.[4,25,26]

On-site Wells - SF-5/19/02

In 1988, three additional upgradient monitoring wells were installed by Rohm and Haas, the parent company of EMCA, for in-house sampling and tracking. The site is currently not involved in any public agency monitoring programs.[4]

No additional remedial actions are known to have occurred at the site. No information regarding any Solid State remedial activities was available.

SECTION 3

3.0 ENVIRONMENTAL SETTING

3.1 Water Supply

Residents within the three-mile radius of the site obtain their water from four public water suppliers or from domestic wells.[1,27]

The North Penn Water Authority (NPWA) supplies water to approximately 55,000 persons in Hatfield, Towamencin, Franconia, Lower Salford, Upper Gwynedd, Hilltown, Worcester, and Skippack Townships, including the towns of Lansdale and Souderton.[28,29] NPWA utilizes 55 groundwater wells, 14 of which are located within the 3-mile radius of the site (the closest well, the L-16 well, is located 1.9 miles north-northwest of the site).[28] Representative of all the NPWA wells, NPWA wells in Hatfield Township in Montgomery County are 8 to 10 inches in diameter, range in depth from 500 to 667 feet, and are cased between 43 and 97 feet. Static water level ranges from 1 to 7 feet, and well yields range from 115 to 300 gallons per minute (gpm).[30] All NPWA wells are completed in either the Lockatong or the Brunswick Formation.[31]

The North Wales Water Authority (NWWA) supplies water to approximately 40,000 persons in Upper Gwynedd, Lower Gwynedd, Whitpain, Upper Dublin, and Montgomery Townships, including the town of North Wales. NWWA utilizes 28 groundwater wells, 5 of which are within the 3-mile radius. The closest well, the no. 50 well, is located 2.4 miles north-northeast of the site. All NWWA wells are completed in either the Brunswick, Lockatong, or Stockton Formation.[32]

The Horsham Township Authority (HTA) has 4,800 connections serving approximately 16,300 persons in Horsham Township (Horsham and Maple Glen), except for the Willow Grove United States Naval Air Station. HTA utilizes 14 groundwater wells, 2 of which are located within the 3-mile radius (2.5 and 2.8 miles southeast of the site).[33] All HTA wells are completed in the Stockton Formation, range in depth from 271 to 625 feet, and have well yields ranging from 130 to 250 gpm.[33,34]

The Warrington Township Municipal Authority (WTMA) supplies water to approximately 10,700 persons in Warrington Township. WTMA utilizes seven groundwater wells, all located outside the three-mile radius of the site.[35]

Homes not serviced by a public supply would rely on private domestic wells. These homes are few in number in the study area, and would include isolated, rural homes only. No home wells were identified within a one-mile radius of the facility.[2]

3.2 Surface Waters

Most surface water runoff from the site would enter the municipal sewer system via either on-site drains to the sanitary system or through street storm sewers. A small percentage of heavy precipitation runoff might enter the on-site pond and creek. The pond, located in the southwestern corner of the building no. 2 lot, empties into an unnamed perennial stream (a branch of Park Creek). Solid State maintained a discharge into this stream. The stream flows approximately 1,600 feet, passing under Commerce Drive, to converge with the intermittent headwaters of Park Creek. Park Creek, a perennial waterway, flows west to east across Montgomery County to eventually converge with Little Neshaminy Creek, approximately 6.38 downstream miles. Several other small tributaries feed Park Creek along its route. Park Creek and Little Neshaminy Creek are both used for recreational purposes, such as fishing. Park Creek and Little Neshaminy Creek are listed as warm-water fisheries.[1,2,4,27,36]

The closest wetland to the site is located 0.5 mile southwest of the facility. The wetland is approximately 60 acres in size and is considered a palustrine, forested, broad-leaved, deciduous temporary wetland. Park Creek flows through this area and is the cause of the wetland designation.[37]

3.3 Hydrogeology

The geologic and hydrogeologic conditions in the study area were researched as part of the site investigation. A preliminary literature review was conducted to determine surface and subsurface geologic conditions, soil character, and the status of groundwater transport and storage.

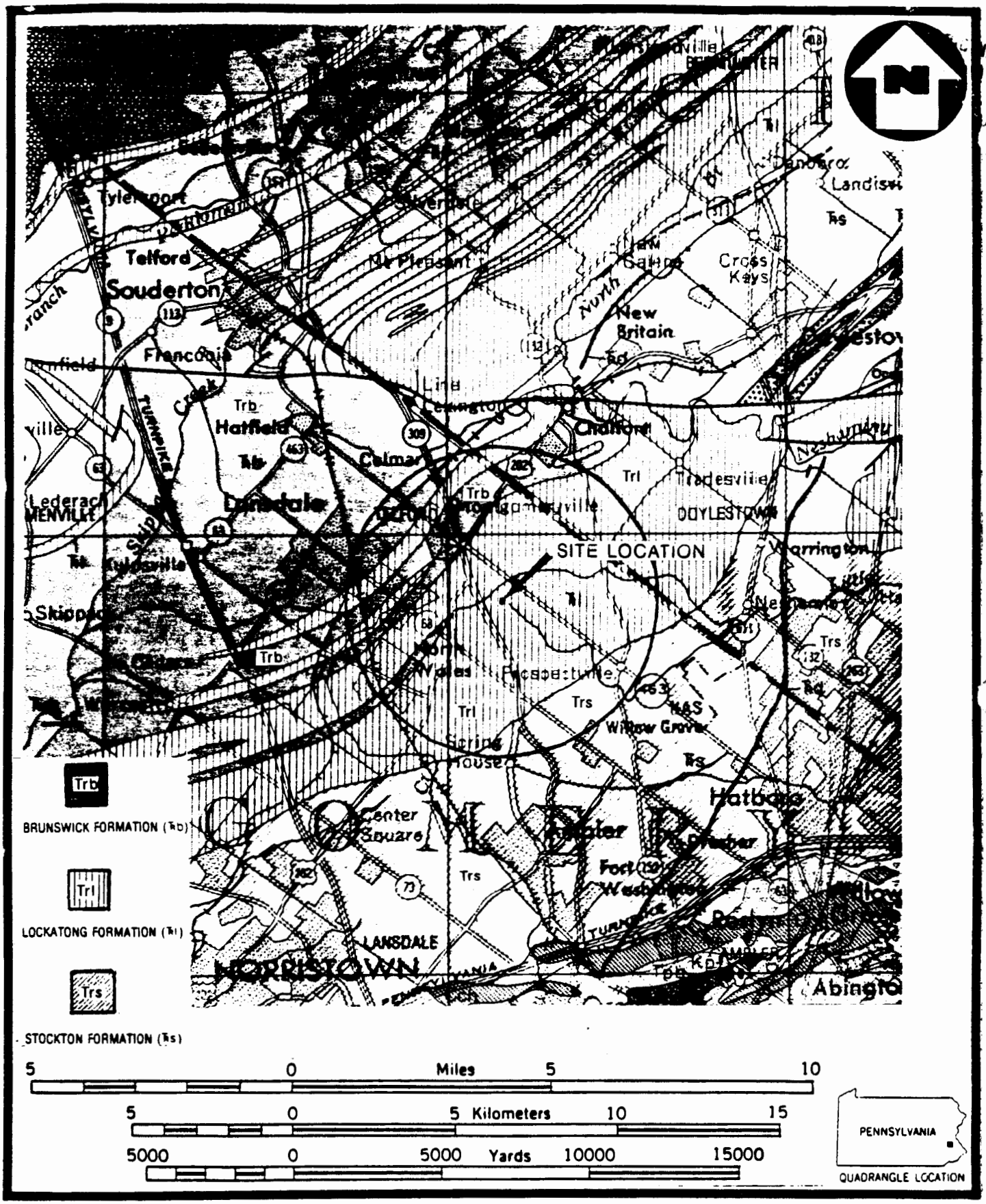
3.3.1 Geology

The Solid State Scientific site is situated within the Triassic Lowlands Section of the Piedmont Physiographic Province.[38] The rocks of this Triassic Section are more commonly known as the Newark Group, a 16,000- to 20,000-foot section of nonmarine sedimentary rocks and associated intrusive and extrusive basic rocks.[39] The Newark Group was deposited in the Newark Basin, which was part of a fracture system initiated by the widening of the Atlantic Basin and the separation of the continents in Mesozoic time.[39,40] The site area has a dendritic drainage pattern and a topography of broad, shallow valleys and rolling hills.[41]

The structural history of the Newark Basin can be applied to all six Triassic rift valleys that stretch from Nova Scotia to North Carolina. This half-graben basin was created during the Palisade Disturbance, the orogenic event that ended the Appalachian Orogeny in late Triassic time. The shape and extent of the original depositional basin were very similar to the present form of the outcrop belt and closely follow the regional grain of Appalachian structures.[39] Continuous downfaulting along the northwestern border has produced a regional dip of 10 to 20 degrees northwest.[41]

The site is underlain by the Triassic age Lockatong Formation (see figure 3.1, page 3-4).[34] The Lockatong Formation is composed of alternating detrital and chemical sediments. The detrital sediments consist of shales succeeded by platy dark carbonate-rich mud and argillite with the occasional ripple-bedded siltstone and sandstone. The chemical sediments consist of dark gray-black dolomitic mudstones succeeded by gray carbonate-rich argillite. The fossil content of the formation includes fish, labyrithodont amphibians, freshwater ostracods, and mollusks. These fossils, in addition to the cyclic detrital and chemical sediments, suggest a lacustrine paleoenvironment for the Lockatong. This ancient lake was stable for millions of years, although there were repeated expansion and waning of its areal extent.[39]

The Lockatong Formation is contemporaneous with the lower-middle portion of the Brunswick Formation. This means that, while the Lockatong Formation was being deposited in the center of the Newark Basin, early Brunswick Formation sedimentation was occurring at the basin margins. When the Lockatong lake dried up, Brunswick Formation sedimentation continued throughout the basin. Given the unique depositional environment of the Lockatong, its thickness varies widely. Estimates range from 3,750 feet near the Delaware River (17 miles northeast of the site) to only tens of feet west of Phoenixville (16 miles southwest of the site), where the formation pinches out.[39]



SOURCE: GEOLOGIC MAP OF PENNSYLVANIA

FIGURE 3.1

GEOLOGIC MAP

NUS CORPORATION

Cropping out one mile northwest of the site is the late Triassic age Brunswick Formation.[34] The Brunswick Formation consists of a monotonous succession of reddish-brown mudstone and siltstone with local beds of claystone and fine-grained sandstone. The formation also contains abundant dinosaur footprints along with bony fish, reptilian, and plant fossils. These fossils suggest a broad mudflat paleoenvironment with wandering water courses and weak external drainage. Long, warm climatic cycles produced episodes of a dry, oxidizing environment (resulting in thick sequences of ferric-oxide-rich mud) alternating with moister periods (resulting in dark gray mud accumulation). The abundant ferric-oxide pigment in the mud suggests considerable weathering in the northwest upland source area. The thickness of the Brunswick is approximately 6,000 feet.[39]

Stratigraphically older than the Brunswick and Lockatong Formations and cropping out 2.5 miles southeast of the site is the Triassic age Stockton Formation.[34] The Stockton Formation consists of a lower conglomerate arkose member, a middle arkosic sandstone member, and an upper mudstone member. The lower yellow gray conglomerate deposits consist of relatively dispersed, moderately rounded clasts of quartz, quartzite, limestone, and feldspar. These clasts, averaging one inch in diameter, are set in a poorly sorted arkosic matrix. The middle sandstone member is a fine- to medium-grained, light yellowish-gray to pale reddish-brown, fairly well-sorted arkosic sandstone. The upper mudstone is reddish-brown in color and is feldspathic. The abundant feldspar in the Stockton Formation implies a continuous supply from a soda-rich, metamorphosed Paleozoic source east and south of the Newark Basin. The erosion of these crystalline eastern and southern highlands spread Stockton sediments across the basin, forming extensive flood-plain deposits. Fossil fauna such as ferns, conifers, ginkos, mollusks, labyrinthodont amphibians, and phytosaur reptiles suggest an extensive fluvial and flood-plain paleoenvironment for the Stockton. The thickness of the formation reaches a maximum of 6,000 feet at the Montgomery-Bucks County line (2.0 miles northeast of the site).[39]

3.3.2 Soils

The site is underlain by a Made land soil. This soil (MeB - sloping) is a result of altering and mixing soils formed in material weathered from shale and sandstone. This land type is mainly nearly level and gently sloping and is likely to be found on low-lying flats. The soil is a dusky-red to yellowish-brown shaly silt loam to channery sandy loam with some areas along the Schuylkill River consisting of gravelly silty clay loam mixed with shale. The soil has a moderate to very slow permeability, a moderate to very low available moisture capacity, and a pH range of very strongly acid to medium acid (4.5 to 6.0).[42]

3.3.3 Groundwater

The Lockatong Formation has a low permeability and a low porosity.[43] The capacity of the Lockatong to store and transmit water is very low; well yields range from 4 to 40 gallons per minute (gpm), with an average yield of about 7 gpm.[41] In Bucks County, a total of 43 wells have a yield range of 2 to 25 gpm, with an average yield of 10 gpm. The formation has a low specific capacity (0.1 to 1.88 gpm per foot).[44]

The expected direction of shallow groundwater flow is to the southeast, toward an unnamed tributary of Park Creek, although there may also be a minor component of flow to the north, toward Little Neshaminy Creek. Flow direction is based upon topographical observations and the role of streams as discharge points for groundwater.

3.4 Climate and Meteorology

According to climatological data obtained for Philadelphia, Pennsylvania, based on the period from 1951 to 1980, the following is offered: The average annual temperature is 54.3°F. The coldest month is January, with a mean temperature of 31.2°F, and the hottest month is July, with a mean temperature of 76.5°F.[45]

The average annual precipitation is 41.42 inches. The month with the highest precipitation is August, with 4.10 inches; the lowest is February, with 2.81 inches.[45] A 1-year, 24-hour rainfall will produce 2.6 inches of rain.[46] The mean annual lake evaporation for the area is 34.5 inches, resulting in a net moisture gain of 6.92 inches.[45,47]

3.5 Land Use

The subject facility is located in an industrial park in a moderately industrialized area. A large active quarry is located approximately 0.5 mile south of the plant. A few scattered homes are located within a one-mile radius north, east, and south of the site. A new development of single-family homes has recently been constructed along Stump Road, one block northwest of Solid State's property.[2]

Land use beyond a one-mile radius of the site, but within the three-mile-radius study area, consists of rural single homes, newer housing developments, and industrial "pockets" to the north, east, and south, and the communities of Lansdale and North Wales to the west.[1,2,27]

3.6 Population Distribution

Approximately 437 persons reside within a 1-mile radius of the subject facility. An estimated 5,280 people live within a 2-mile radius, and approximately 57,495 people reside within a 3-mile radius of Solid State.[1,27,48]

These population figures were derived by adding the incorporated percentages of the 1980 census populations for Lansdale and North Wales, Pennsylvania to house-count figures (where each unit is multiplied by 3.8 persons per home) for each radius.

3.7 Critical Environments

No critical environments are expected to be found within the three-mile-radius study area. Two federally listed birds are expected to be found as transient species in the study area. They are the bald eagle (Haliaeetus leucocephalus) and the peregrine falcon (Falco peregrinus).[49]

SECTION 4

4.0 WASTE TYPES AND QUANTITIES

Hazardous waste generated on site during Solid State's operations was classified by the facility as including the following EPA RCRA waste identification numbers: D001, D002, F002, F003, and F005. The wastes codes presented were derived from the facility's 1982 amended Part A Hazardous Waste Permit Application and may not totally represent all wastes that were present on site.[3]

Hazardous wastes generated on site during EMCA's current operations have been classified by the facility as including the following EPA RCRA waste identification numbers: D008 and F003. The waste codes presented were provided by an EMCA representative during the FIT site visit and may not totally represent all wastes present on site.[4]

The majority of wastes generated by Solid State were associated with the electroplating operation at the Montgomeryville facility. A 750-gallon wastewater treatment tank was listed by Solid State as having a treatment capacity of 85,000 gallons per day. Treated effluent was discharged to a branch of Park Creek under NPDES Permit No. PA0050130.[11,12]

According to Solid State's amended (and final) 1982 Part A Hazardous Waste Permit Application, the following process design capacities, quantities, and types of wastes existed at the facility: 5,500 gallons of contained wastes and 2,500 gallons of tank-stored wastes (design capacities); an estimated 230 tons of D002 waste were generated annually in addition to 3.11 tons of D001 wastes, 1.2 tons of F002 waste, 3 tons of F003 waste, and 1 ton of F005 waste. Specifics about common or commercial waste names, quantities, and waste disposal practices were not available. Waste solvents for the electroplating operation were stored in a 55-gallon steel in-ground tank. Additional hazardous wastes were placed in sealed 55-gallon drums and stored prior to disposal off site. Except for one instance, names of wastes haulers and manifests were not available. Blackwood Chemical, of New Jersey, was noted in state file information as the transporter of materials from the waste solvent tank.[3,12,19]

550-gal. ?- SL - 5/18/02

The current facility operation, EMCA, is a small-quantity generator. No more than two 55-gallon drums of hazardous wastes are generated during a 90-day disposal period. This waste consists of one drum of listed F003 solvent waste and one drum of characteristic D008 product waste. The drummed wastes are removed off site by Rollins every 90 days or less. In addition, nonhazardous process aqueous and powder wastes are each stored in two 2,300-gallon above-ground storage tanks. These tanks are emptied every 6 to 10 weeks by Matlack, which transports the waste to Deepwater for incineration. Manifests are maintained on site for all waste removals. Solid waste is hauled off site by O'Hara Sanitation.[4]

4.1 Solid Waste Management Units

Six SWMUs have been identified for the facility. Three of the SWMUs existed only during Solid State's operations, two exist only during EMCA's operation, and one SWMU, which was constructed and used by Solid State, was later modified and is currently being utilized by EMCA.[2,3,4] The six SWMUs are as follows:

Solid State Scientific

- acid treatment tank (building no. 2)
- in-ground waste solvent tank (building no. 2)
- empty drum storage area (building no. 1)

Solid State Scientific and EMCA

- Drum storage shed

EMCA

- empty drums storage area
- above-ground waste storage tanks

4.1.1 SWMU No. 1

Acid Treatment Tank (Building No. 2)

A 750-gallon in-ground tank was utilized by Solid State for the treatment of plant wastewaters, including electroplating wastes. Information regarding the operation of a treatment system at the facility was unavailable for this report. It is believed that the tank was used in conjunction with a treatment plant set-up. The treatment plant building still stands on the southern portion of the lot. The tank was located approximately 100 feet west of the treatment plant, underground. The system apparently utilized limestone filters and flocculants to neutralize and precipitate acids and metals, respectively, from the wastewater.[2,3,19]

Solid State maintained NPDES Permit No. PA0050130 for discharges from the wastewater treatment system to a branch of Park Creek. After a series of violations and fines by the PA DER Bureau of Water Quality in 1980, for failure to meet effluent criteria, Solid State retained several different consultants, at different times, to redesign the system in order to better meet the established water quality criteria for the discharge. The eventual outcome of the redesign is uncertain. The tank was apparently removed before Solid State halted operations at this facility.[3,4,19,20,21]

Date of Start-Up

Information regarding the acid treatment tank's implementation was unavailable. From state file information, it is believed that the tank was in use by at least 1979.[19]

Date of Closure

Information regarding closure of this unit was not available. It is believed the tank was removed at some time in the mid-1980s, before Solid State vacated the facility.[4]

Wastes Managed

Electroplating wastes were treated by this unit. Treatment included neutralization and flocculation. The following EPA RCRA waste identification numbers were noted on the facility's 1980 Part A Hazardous Waste Permit application: U002, U072, U134, U154, U188, U226, U229, and U239. The application also noted the use of process code T01 at a design capacity of 85,000 gallons per day. The above notifications were deleted from the facility's amended 1982 Part A Hazardous Waste permit Application when it was determined that these items were monitored under the NPDES permit program and need not be included in the application. Information regarding the exact nature and quantities of waste managed by this unit was not available.[3,12]

Release Controls

No information was available that could detail containment structures associated with this unit. The unit consisted of a 750-gallon underground steel tank.[3]

History of Releases

No releases from this specific unit have been reported. Illegal discharges exceeding allowable water quality criteria for fluorides, dissolved solids, phenol, zinc, hexavalent chrome, and pH were detected in the permitted effluent from the tank to a branch of Park Creek. These violations occurred between at least 1976 and 1980, according to PADER Bureau of Water Quality records.[19,20,21]

The unit was removed prior to 1987.[4] No evidence of spills or releases was observed during the FIT visit.[2]

4.1.2 SWMU No. 2

In-Ground Waste Solvent Tank (Building No. 2)

A 550-gallon steel, underground storage tank was utilized by Solid State for the storage of waste solvents before disposal. The tank was located on the southern portion of the building no. 2 lot, approximately 25 feet west of the acid treatment tank. The tank was emptied by Blackwood Chemical, of New Jersey. The tank stored waste solvent from the facility's electroplating operation. The tank was filled via piping from within the building. The tank and piping were removed sometime in 1987.[2,3,19]

Date of Start-Up

No information regarding the start-up date of this unit was available.

Date of Closure

No information regarding the specifics of closure for this unit was available. Information referring to the removal of the tank indicate a closure of the unit in 1987. The unit was excavated and removed by the current owner, HVDC.[4,26]

Wastes Managed

The tank was used to store waste solvents from a facility electroplating operation. In Solid State's 1982 permit application, wastes were categorized as EPA RCRA waste identification numbers D001, F002, F003, and F005.[50]

Release Controls

Waste solvents were stored in a 55-gallon underground steel tank. The wastes were piped into the tank via piping from within the building. Information regarding any additional containment measures for this unit was not available.[19]

History of Releases

According to PA DER file information, an unknown prospective buyer installed five monitoring wells at the building no. 2 property after Solid State's vacancy of the site. Subsequent groundwater samples revealed volatile contaminants in well no. 3. PA DER personnel believe that the solvents originated from the underground waste solvent tank. In addition to removal of the tank and its piping, PA DER, in concurrence with the new property owner's (HVDC) consultant, Dames and Moore, approved a work plan for the removal of additional contaminated soils from the well no. 3 area.[25,26]

No additional release incidences are known to have occurred with this unit. No evidence of spills or releases was observed during the FIT visit.[2]

4.1.3 SWMU No. 3
Empty Drum Storage Area (Building No. 1)

An empty drum storage area was maintained by Solid State in the southeastern corner of the building no. 1 lot. The drums were cleaned and stored before removal.[3,19]

Date of Start-Up

No information was available regarding the operation of this unit.

Date of Closure

No information was available regarding the operation of this unit. The property and building are currently occupied by a different owner. Solid State vacated the facility sometime in 1986 or 1987.[2,24]

Wastes Managed

This unit was utilized for the storage of empty, clean 55-gallon drums. No hazardous wastes were associated with this area.[3,19]

Release Controls

Information regarding containment measures was not available. The unit was used for the storage of empty, clean 55-gallon drums. No hazardous wastes were stored in this area.[3,19]

History of Releases

No evidence or records of releases were found for this area.

4.1.4 SWMU No. 4
Drum Storage Shed

The drum storage shed is approximately 42 by 36 feet in size; it is located on the western side of the parking area, north of the plant building on lot no. 2. The unit is used for the storage of raw materials, as well as containerized hazardous wastes. The unit was constructed by Solid State and modified by EMCA; each operator has utilized the shed for drummed materials storage. The area, built over the parking lot macadam surface, is enclosed within a 10-feet-high fence and locking gate; a detached roof was added to the structure by EMCA. Raw materials are stored on the macadam surface, which has a six-inch macadam curb outlining the perimeter of the area. A smaller, 16-foot elevated concrete pad with a 4-inch curb was constructed by EMCA within the shed enclosure for the additional containment provided for storage of hazardous wastes. EMCA also utilized the second containment area for the dispensing of raw materials.[2,3,4]

Date of Start-Up

The unit has been active during both Solid State and EMCA operations. Information regarding the date of start-up under Solid State was not available; EMCA began operations at the facility in May 1988.[3,4]

Date of Closure

The unit is currently in operation. A closure plan for the Solid State facility, including the drum storage shed, was submitted in December 1984. Information regarding any closure activities for this unit, such as the removal of all wastes and thorough cleaning of the area, was not available. No plans for closure have been made by EMCA.[3,4,16]

Wastes Managed

Unspecified wastes generated by Solid State's operations were stored in this area. The wastes were placed in 55-gallon steel drums prior to storage in this unit. Solid State categorized the generated wastes at the facility as characteristic wastes D001 and D002 or listed wastes F002, F003, and F005.[3,12,50]

EMCA generates and stores no more than one 55-gallon drum of solvent waste and one 55-gallon drum of product waste per 90-day disposal period. An EMCA representative categorized the wastes as listed waste F003 and characteristic waste D008.[4]

Release Controls

All wastes stored in this area are contained in sealed 55-gallon drums. Secondary containment is provided by a macadam surface, a continuous six-inch macadam berm along the perimeter, fencing to restrict access, and a roof to control rainwater entry. No drains exist in the contained area.[2,4]

In addition to constructing the roof included above, EMCA modified Solid State's existing storage shed by constructing an additional (tertiary) containment area within the fenced enclosure. An elevated 16- by 16-foot concrete pad with 4-inch-high concrete perimeter curbing was situated in the northeastern corner of the shed. EMCA utilized this pad for the storage of hazardous waste and the dispensing of raw materials; containers of raw materials are hand-trenched onto the concrete pad before the materials are dispensed with a pump.[2,4]

No estimate of the containment volume of the area is available.

History of Releases

Information regarding any spills or releases during Solid State's operation was not available.

According to an EMCA representative, no releases have occurred in this unit since EMCA's operation. No evidence of spills or release was observed during the FIT visit.[2,4]

4.1.5 SWMU No. 5
Empty Drums Storage Area

Located in a recessed area along the western facade of the EMCA plant building, this unit consists of an approximately 5- by 5-foot concrete pad, fenced on its 2 open sides and used for the storage of empty 55-gallon drums. It is not known whether this area was also used during Solid State's operation (nor is it so believed). EMCA's bulk materials distributor reclaims the empty drums; no drums are reused by EMCA on site. The drums are stacked two or three deep while awaiting removal in this area.[2,4]

Date of Start-Up

EMCA began operations at this facility in May 1988; the exact date this unit became active is unknown.[4]

Date of Closure

The unit is currently active. No plans for closure have been made.[4]

Wastes Managed

This unit is used for the storage of empty 55-gallon drums. No hazardous wastes are associated with this area.[4]

Release Controls

This area is used to store empty 55-gallon drums. No hazardous wastes are stored in this area. The unit consists of a fenced concrete pad.[2,4]

History of Release

No release from this area has been reported. No evidence of spills or releases was observed during the FIT visit.[2,4]

4.1.6 SWMU No. 6
Above-Ground Waste Storage Tanks

Each department in the production area of the plant utilizes a sump to collect aqueous and powder wastes. The wastes are transported, separately, via an above-ground piping system, to two 2,300-gallon above-ground storage tanks. The two waste streams are never mixed. The two waste storage tanks are situated partially inground and are located in the former Solid State treatment building, approximately 50 feet south of the plant building. Neither waste stream contains any hazardous materials. Every 6 to 10 weeks, the tanks are emptied, and the wastes are transported off site by Matlack to the deepwater incinerator. No aqueous process wastes enter the public sanitary system.[2,4]

Date of Start-Up

The above-ground waste storage tanks and the associated waste collection system were put in place with the start of EMCA's operations at the subject facility, in May 1988.[4]

Date of Closure

This unit is currently in operation. No plans for closure have been made.[4]

Wastes Managed

Each storage tank handles either aqueous process wastes or powder process wastes. The waste streams are not mixed. No aqueous process wastes enter the public sanitary sewer lines into the building. A sump and above-ground piping system direct the wastes from the individual production areas and outside the building to the respective storage tank. The tanks have a capacity of 2,300 gallons each. The tanks are emptied every 6 to 10 weeks for off-site transport and disposal. According to site representatives, neither of the waste streams contains any hazardous constituents.[2,4]

Release Controls

Process wastes are stored in 1 of two 2,300-gallon, above-ground tanks. The tanks are filled via above-ground piping from sources from within the plant. The tanks themselves are situated partially inground. The two tanks are located in the former Solid State treatment building; therefore, the units are situated within concrete-lined encasements. The building has a roof over the concrete walls. Secondary containment is provided by the design of the former treatment building.[2,4]

History of Releases

No releases from this area have been reported. No evidence of spills or release was observed during the FIT visit.[2,4]

SECTION 5

5.0 FIELD TRIP REPORT

5.1 Summary

On May 9, 1989, NUS FIT 3 personnel Lisa Lillis and David Spencer conducted a preliminary assessment of Solid State Scientific/EMCA in Montgomeryville, Pennsylvania. FIT 3 was accompanied on site by Charles Williams, of EMCA. Weather conditions during the visit were sunny, with a temperature of 48°F. Photographs were taken on site (see figure 5.1, page 5-3, and the photograph log, section 5.4).

5.2 Persons Contacted

5.2.1 Prior to Field Trip

Josephine Histand
Environmental Engineer
Sprague Electric Company
3900 Welsh Road
Willow Grove,PA 19090
(215) 657-8400

Glenn R. Baker, Jr.
Property Manager
Horsham Valley Development Corporation
Lotz Property Management
200 Gibralter Road, Suite 124
Horsham, PA 19044
(215) 674-5456

Charles Williams
Safety, Health and Environmental
Product Integrity Manager
EMCA, A Rohm and Haas Company
160 Commerce Drive
Montgomeryville, PA 18936
(215) 855-1000

Carol Quigley
PA DER
1875 New Hope Street
Norristown, PA 19401
(215) 270-1948

5.2.2 At the Site

Charles Williams
Safety, Health and Environmental
Product Integrity Manager
EMCA, A Rohm and Haas Company
160 Commerce Drive
Montgomeryville, PA 18936
(215) 855-1000

Glenn R. Baker, Jr.
Property Manager
Horsham Valley Development Corporation
Lotz Property Management
200 Gibralter Road, Suite 124
Horsham, PA 19044
(215) 674-5456

5.2.3 Water Supply Well Information

The majority of homes in the study are serviced by one of four area public water supplies. The few homes not serviced, including remote, isolated homes, would rely on on private domestic wells for a potable supply. No private or public wells were identified within a one-mile radius of the facility; no surveys were distributed.

5.3 Site Observations

- The background reading on the HNU was 0.2 ppm. No readings above background were recorded during the site visit.

- The mini-alert was set at the X1 position. No readings above background were recorded during the site visit.

- The building no. 1 lot consisted of a single building and was occupied by the Lactona Company at the time of the FIT site visit.

- The building no. 3 lot consisted of a single building and large parking area. This corner lot was occupied by Mayco Precision Coated Abrasives at the time of the FIT site visit.

- The building no. 2 lot was occupied by EMCA, a Rohm and Haas Company. The facility's offices, laboratories, and manufacturing operations were located in one building in the center of the property. A storage shed was located off the northwestern corner of the building. Two above-ground tanks were situated in a former treatment plant building south of the operations building.

- Each area of the plant had a sump. Aqueous wastes and waste powders were pumped via above-ground piping to two outside storage tanks.

- A 10-feet-high, fenced enclosure, with a roof, was used as a storage shed. The shed had a macadam surface with dike and a smaller concrete-diked pad for drum storage within the larger area. No drains were observed in this area.

- Empty 55-gallon drums were stored in a fence area along the western side of the building.

- Two above-ground aqueous process tanks were located in the former Solid State wastewater treatment building.

- A former discharge pipe outfall "box" was observed on the northern bank of the creek.

- No stressed vegetation or stained soils were observed.

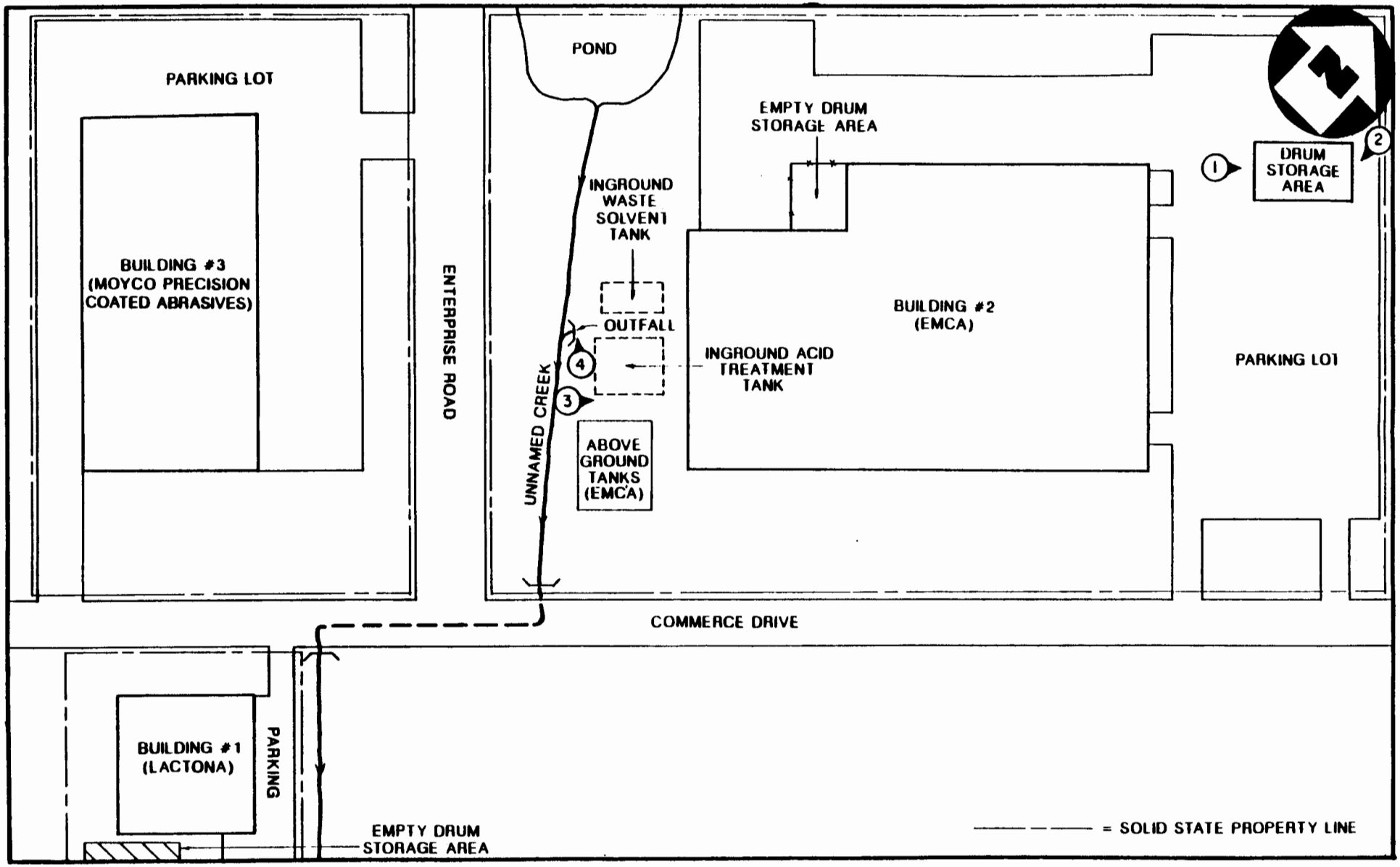


FIGURE 5.1

PHOTO LOCATION MAP

SOLID STATE SCIENTIFIC

(NO SCALE)

NUS CORPORATION

5.4 PHOTOGRAPH LOG

Photo No. 1
Drum storage shed looking north.

Photo No. 2
Locked entrance to storage shed.

ORIGINAL
(Red)

Solid State Scientific
TDD No. F3-8903-66
EPA No. PA-3443

R, P
Photo No. 1

Drum storage shed looking north.

5/9/89

0952

David Spencer

Solid State Scientific
TDD No. F3-8903-66
EPA No. PA-3443

R, P,
Photo No. 2

Locked entrance to storage shed.

5/9/89

0950

David Spencer

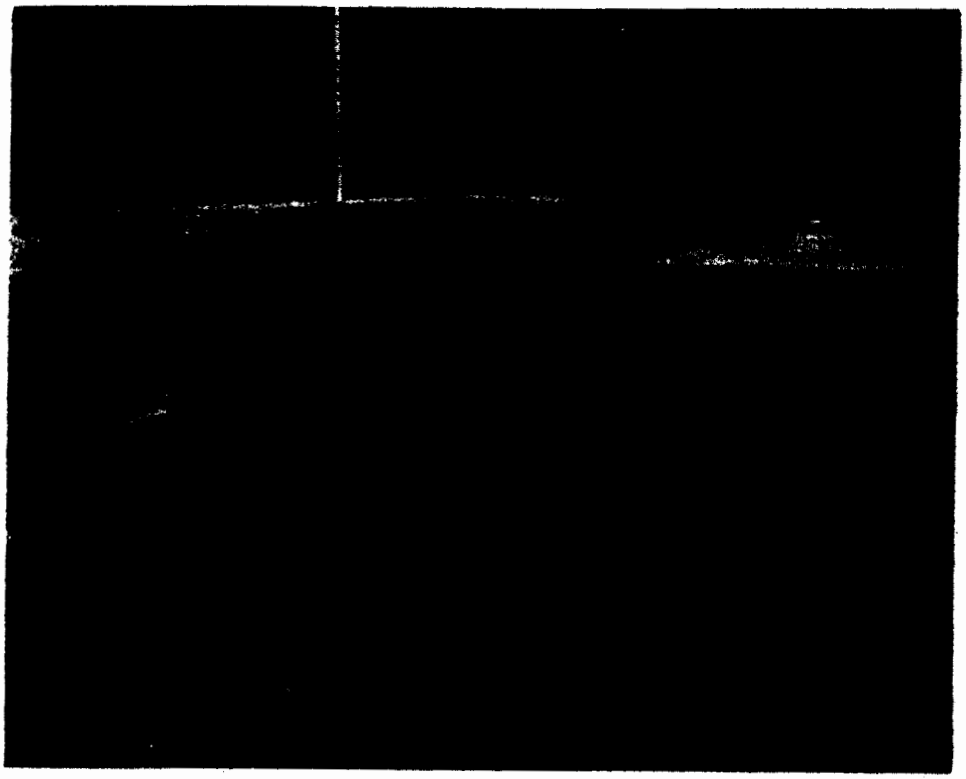


Photo No. 3
Former location of Solid State's Acid Treatment Tank.

Photo No. 4
Discharge outfall into unnamed creek.

ORIGINAL (Red)

Solid State Scientific
TDD No. F3-8903-46
EPA NO. PA-3443

R, P3
Photo No. 3

Former location of Solid State's
Acid Treatment Tank.

5/9/89

David Spencer

1000

Solid State Scientific
TDD No. F3-8903-46
EPA No. PA-3443

R, P4
Photo No. 4

Discharge outfall into unnamed creek.

5/9/89

David Spencer

1000

SECTION 6

6.0 REFERENCES FOR SECTIONS 1.0 THROUGH 5.0

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Provided by: PADEP

SOLID STATE SCIENTIFIC INC.

MONTGOMERYVILLE PENNA 18936 ☐ 215-855-8400
TWX 510-661-7267

August 18, 1981

Mr. Joseph A. Feola
Water Quality Specialist
Pennsylvania Department of Environmental Resources
Bureau of Water Quality Management
Norristown Regional Office
1975 New Hope Street
Norristown, PA 19401

Reference: Industrial Waste Application #4681202
(Preparedness, Prevention and Contingency Plan)
Solid State Scientific, Inc.
Montgomery Township
Montgomery County

Dear Mr. Feola:

Following is the detailed information you and Rob Allen requested during your phone call to me on Thursday, August 13, 1981. We have, apparently, four areas located outside our buildings which are used in containerizing or neutralizing our waste materials.

Location	Size of Tank or Containment Area	DOT Hazard Class	EPA Hazard Waste #
Building #2	500 gal. In-Ground Tank	07	D001
Building #2	750 gal. In-Ground Tank (Used for acid neutralization and discharge to creek)	02	D002
Building #2	Approximately 1200 sq. ft. drum storage area	07 02 15	D001 D002 F001 D999
Building #3	1000 gal. In-Ground Tank	02	D002

Note: The above tanks and storage area are indicated on Page 40 of our EIPP

Attached is a complete listing of all chemicals used at our plant with the appropriate hazardous waste number and hazardous class for the EPA.

I hope that this detailed information will answer all questions concerning our Facility, and that we may soon have a construction permit to build a waste treatment plant at our site.

Sincerely,

Craig S. Phillips, P.E.
Facilities Manager

CSP:jmb

Attachments

cc: Rob Allen
Al Corace

CHEMICAL FAMILY	CHEMICAL NAME	HAZARDOUS WASTE NO.
Organic Acid	Acetic Acid	D002
Organic Acid	Acid Etch	D002
Inorganic Acid	Hydrochloric Acid	D002
Inorganic Acid	Hydrofluoric Acid	D002
Inorganic Acid	Nitric Acid	D002
Inorganic Acid	Phosphoric Acid	D002
Inorganic Acid	Sulfuric Acid	D002
Inorganic Acid	FE12-CC13 Iron Oxide	D002
Inorganic Acid	K.T.I. Stripper	D002
Acid Oxidizer	CR-9 Chrome Etchant	D001
Blend	Ammonia Fl HR Mix.	D002
Alkali	Sodium Hyrdoxide	D001
	Phosphorous Oxychloride	N/A
	Ferrous Chloride	N/A
Alkali	Ammonium Hydroxide	D001
Organic Solvent	A-40 Solution	D002
Peroxide	Hydrogen Peroxide	
	Chromium Trioxide	D002
Organic Acid	Alpha No. 850-55 Flux (soldering flux)	D001
	Alpha 2100 Aqueous Rosin Cleaner (cleaner concentrate)	

* - Used in production and are not disposed of as a waste.
N/A - Not Applicable

CHEMICAL NAME	HAZARDOUS WASTE NO.	HAZARDOUS CLASS
cetic Acid	D002	Corrosive
cid Etch	D002	Corrosive
ydrochloric Acid	D002	Corrosive
ydrofluoric Acid	D002	Corrosive
itric Acid	D002	Corrosive
hosphoric Acid	D002	Corrosive
Sulfuric Acid	D002	Corrosive
FE12-CC13 Iron Oxide	D002	Corrosive
K.T.I. Stripper	D002	
CR-9 Chrome Etchant	D001	Corrosive
Ammonia Fl HR Mix.	D002	Corrosive
Sodium Hyrdoxide	D001	Corrosive
Phosphorous Oxychloride	N/A	*
Ferrous Chloride	N/A	*
Ammonium Hydroxide	D001	Corrosive
A-40 Solution	D002	Corrosive
Hydrogen Peroxide		Oxidizer
Chromium Trioxide	D002	Corrosive
Alpha No. 850-33 Flux (soldering flux)	D001	Flammable
Alpha 2100 Aqueous Rosin Cleaner (cleaner concentrate)		Corrosive

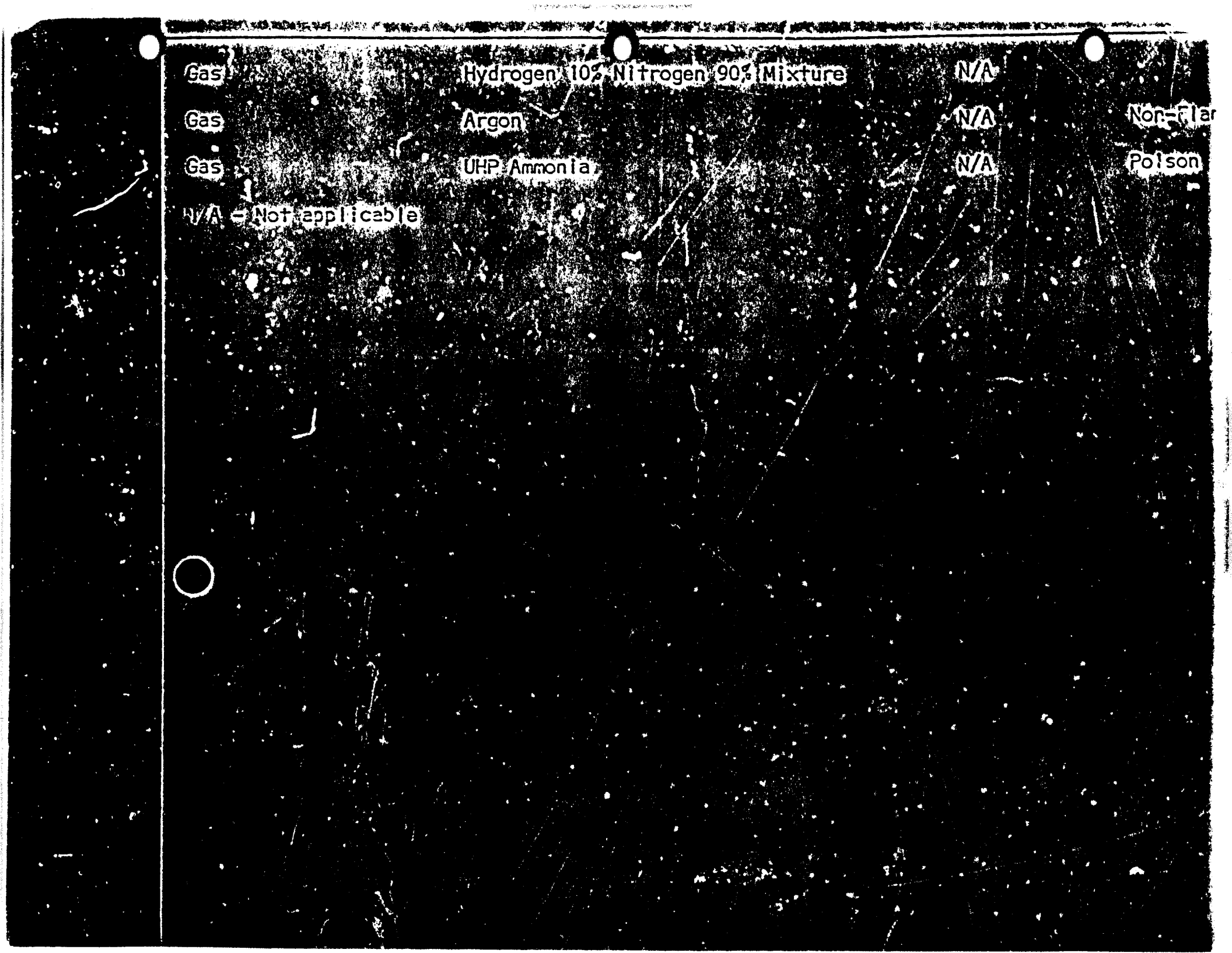
nd are not disposed of as a waste.

CHEMICAL FAMILY	CHEMICAL NAME	HAZARDOUS WASTE NO.	HAZARDOUS CLASS
Caustic	Caustic Soda	N/A	**

** Used in treatment of exhaust scrubber.

CHEMICAL FAMILY	CHEMICAL NAME	HAZARDOUS WASTE NO.	HAZARDOUS CLASS
Solvent	Waycoat LSI Thinner	D001	Flammable
Solvent	Acetone	D001	Flammable
Solvent	Isopropyl Alcohol	D001	Flammable
Solvent	Methyl Alcohol	D001	Flammable
Solvent	Xylene	D001	Flammable
Solvent	Micro Neg. Rinse	D001	Flammable
Solvent	Waycoat SC 100	D001	Flammable
Solvent	HNR-120	D001	Flammable
Solvent	Type "2" Developer	D002	Corrosive
Solvent	111 Trichlorethane	F001	Flammable
	PF-95 Fixer	D002	*** NH
	D-8 Reversal Developer	D002	*** NH
	CB-15 Clearing Bath	D002	*** NH
	RB-90 Reversal Bleach	D002	*** NH
	HMDS	N/A	Poison/Plai

*** Non-hazardous material


Gas
Hydrogen 10% Nitrogen 90% Mixture
N/A
Gas
Argon
N/A
Non-Flar
Gas
UHP Ammonia
N/A
Poison
N/A - Not applicable

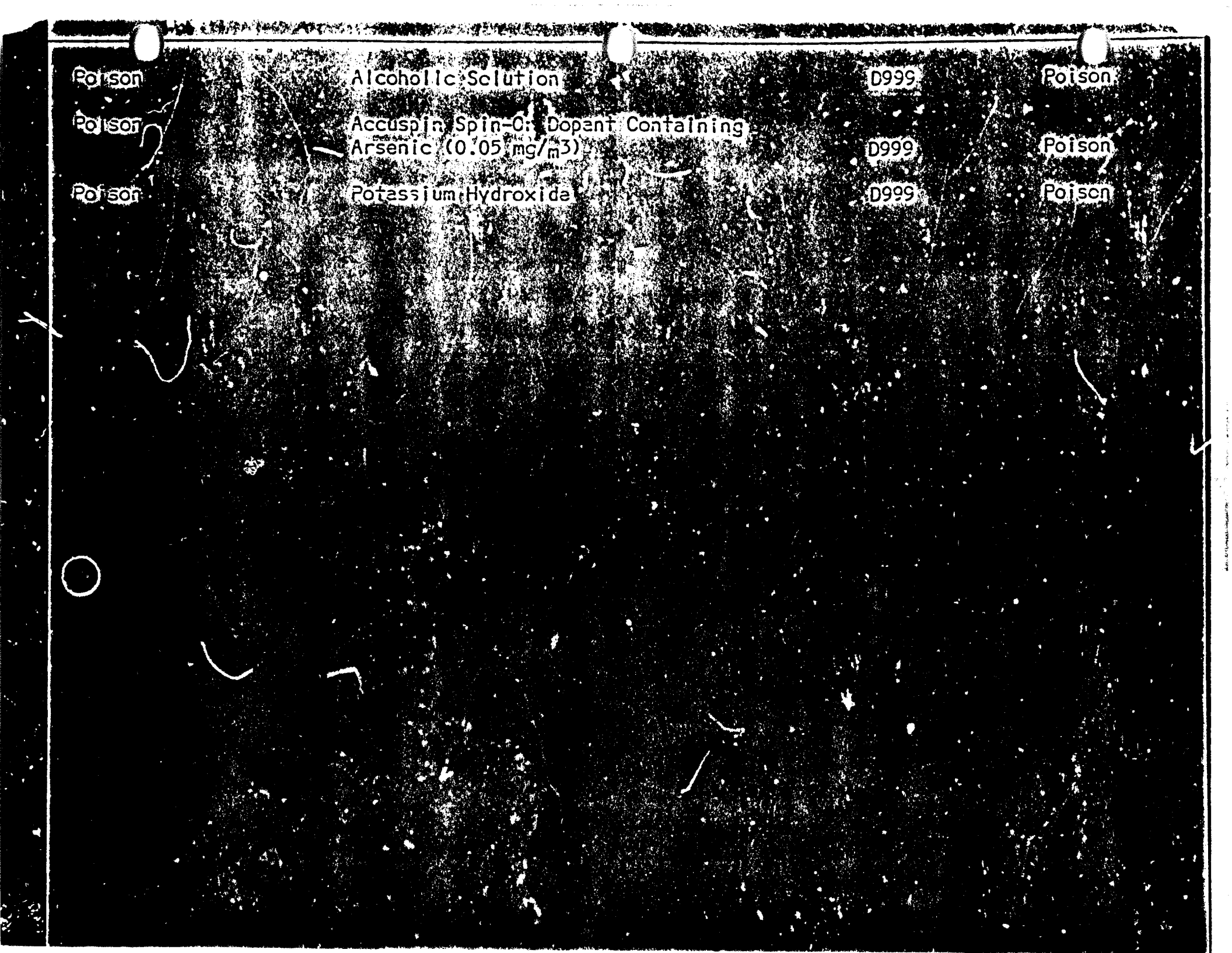
Gas	1% Phosphine/Bal N_2	N/A	
Gas	Triton X-100	N/A	Poison
Gas	Ammonia Electronic	N/A	Poison
Gas	PDE 100 NOS	N/A	Non-Flammable
Gas	100% Silane 3000 Grm.	N/A	Flammable
Gas	100% HCL Elect. Grade	N/A	Poison
Gas	PAD Etch	N/A	Poison
Gas	Freon-13	N/A	
Gas	Sulfur Hexafluoride	N/A	Poison
Gas	Freon 16	N/A	

N/A = Not applicable

Gas	PAD Etch	N/A	Poison
Gas	Freon-13	N/A	
Gas	Sulfur Hexafluoride	N/A	Poison
Gas	Freon 16	N/A	

N/A = Not applicable

Gas	Phosphorouspentafluoride	N/A	Corros
Gas	Borntrifluoride	N/A	Corros
Gas	1.10% Diborane in Nitrogen	N/A	Flamma
Gas	Ammonia Annydrous Electronic	N/A	Flamma
Gas	Silane	N/A	Flamma
Gas	Carbon Dioxide	N/A	Poison
Gas	Helium	N/A	Non-Fl
Gas	Gas Mixture (1.02% Phosphine in Nitrogen)	N/A	Poison
Gas	Silane in Nitrogen Mixture	N/A	Flamma
Gas	Hydrogen Chloride	N/A	Non-Fl
Gas	Hydrogen	N/A	Flamma
Gas	Oxygen/Oxidize	N/A	Oxidiz
Gas	Oxygen	N/A	Oxidiz
Gas	Dichlorosilane	N/A	Flamma
Gas	Diborane 1%	N/A	Poison
Gas	1% Phosphine/Bal N_2	N/A	
Gas	Triton X-100	N/A	Poison
Gas	Ammonia Electronic	N/A	Poison
Gas	PDE 100 NOS	N/A	Non-Fl
Gas	100% Silane 9000 Grm:	N/A	Flamma


Poison
Alcoholic Solution
D999
Poison
Poison
Accuspin Spin-On Dopant Containing
Arsenic (0.05 mg/m3)
D999
Poison
Poison
Potassium Hydroxide
D999
Poison